The Nostratic Macrofamily and Linguistic Palaeontology

Aharon Dolgopolsky

with an introduction by
Colin Renfrew

THE McDONALD INSTITUTE FOR ARCHAEOLOGICAL RESEARCH

Papers in the Prehistory of Languages

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by Colin Renfrew

Introduction: the Nostratic Hypothesis, Linguistic Macrofamilies and Prehistoric Studies

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Foreword

It is with great pleasure that I take the opportunity of introducing Aharon Dolgopolsky's *The Nostratic Macrofamily and Linguistic Palaeontology*, published by the McDonald Institute for Archaeological Research as a part of its current Research Project on 'The Prehistory of Languages'. The project is supported with a generous grant from the Alfred P. Sloan Foundation. The Foundation has as its aim the support of research at the uncertain frontiers of knowledge, where the limits to our understanding are not yet clearly defined, and such appears the position in this field, where historical linguistics, prehistoric archaeology and molecular biology overlap in an area of uncertain methodologies.

Such, at any rate to the outside observer, well characterizes the current position in historical linguistics with regard to what may be called 'macrofamilies', that is to say wide linguistic groupings which bring together a number of established linguistic families. The validity of such an enterprise has been questioned by a number of linguists, and the status of the position with regard to macrofamilies (or 'superfamilies') is far from clear to an outsider. At the same time the significance to the understanding of human history and prehistory, if the validity of such macrofamilies were to be accepted, is enormous. The implications for the early history of human populations, and of population movements, would be very considerable. For this reason the topic is attracting increasing attention among archaeologists and among molecular geneticists concerned precisely with the reconstruction of early population histories, to which their own discipline is now increasingly in a position to make notable contributions.

The Nostratic macrofamily has been documented for some time by a substantial body of work, but much of this is published in Russian and is little known in the west. For that reason this short monograph by Aharon Dolgopolsky may be seen as of particular importance. Its subject matter is of the greatest interest to the prehistoric archaeologist of Europe and Western Asia and lands beyond, just

as it must be to the historical linguist concerned with the languages of these areas. But this work goes further: it presents for the first time a full and rich illustration, with a large vocabulary, of the central tenet of the Nostratic hypothesis, namely that the constituent families of the Nostratic macrofamily are indeed related, and that this relationship can be documented using the traditional and well tried 'comparative method' of historical linguistics. This was first developed in its full complexity and rigour in the field of Indo-European studies (Brugmann 1897–1916) and has subsequently been applied to a wide range of language families. The present short monograph should therefore offer to historical linguists the opportunity of evaluating the linguistic reconstructions presented here, and thus the hypothetical relationships which it is claimed that they demonstrate.

The discipline of historical linguistics has had some difficulty, or so it would seem, in evaluating the claims of those who have proposed the existence of various macrofamilies. It is therefore the intention of the 'Prehistory of Languages' Project of the McDonald Institute to seek to generate informed discussion of the present short monograph by circulating it widely, and by inviting qualified linguists and others to submit comments which, it is hoped, will form the basis for a symposium or conference, to be held probably in 1998, to evaluate the current standing of the Nostratic hypothesis.

It is furthermore the hope and intention of the McDonald Institute to publish, within the framework of the Project, Dolgopolsky's comprehensive *Nostratic Dictionary*, currently in preparation. For it is clear, in view of the methodological difficulties, that historical linguists will best be able to evaluate the status and standing of the proposed Nostratic macrofamily when they are in possession of a very substantial body of data. If the Nostratic hypothesis is accepted, the *Nostratic Dictionary*, building on Dolgopolsky's earlier work and that of Illich-Svytich, will clearly be a fundamental and pioneering contribution to our understanding of the prehistory of Europe and Western Asia and of the principal languages of these regions. But first, until that acceptance be achieved, it will serve as the basic exposition and exemplification of the Nostratic hypothesis itself, and therefore, quite properly, become the object of critical examination by historical linguists.

It is hoped that the present volume will permit the first stage in that process of critical evaluation. As indicated above, the intention is to follow it with a further volume of critical studies which will form part of the evaluative process. Dolgopolsky's important paper in many ways speaks for itself. If the initial hypothesis (of the validity of the proposed macrofamilial relationships and

equivalences) is accepted, then it throws a flood of light upon the world of the Upper Palaeolithic and perhaps the Early Neolithic of a vast segment of the earth. This would be of the greatest importance for prehistoric archaeologists and for all those concerned with the early human past. At the same time since the language families involved include, in the modern world, so high a proportion of the world's languages, the Nostratic proto-language (if the hypothesis is accepted) offers fundamental insights into the earliest discernible origins of these various languages. The prospect is therefore a very exciting one. In the few pages of this Introduction I shall try to touch upon some of these issues, drawing upon an earlier paper (Renfrew 1991), while very much aware as a non-linguist how difficult it is to evaluate or comment upon the central hypothesis, namely the validity of the Nostratic macrofamily concept. I am aware also that this is not an easy task for linguists, and it is therefore in a spirit of enquiry, and in the hope of clarifying the current status of the Nostratic hypothesis (and that of other proposed macrofamilies) that this volume is published

The Nostratic hypothesis

The Nostratic hypothesis, in its earliest form, was put forward in 1903 by the Danish linguist Holger Pedersen, who drew attention to similarities between a number of the language families of the Old World, including Semitic, Indo-European, Uralic, Altaic and Eskimo-Aleut (Pedersen 1931). He suggested that these could be regarded as belonging to a larger linguistic unity , which he proposed to call 'Nostratic', a term derived from the Latin *nostras* (genitive *nostratis*), 'our countryman'. The terminology is somewhat ethnocentric, and for that reason Dolgopolsky's term 'Boreic' (Dolgopolsky 1973) or Joseph Greenberg's 'Eurasiatic' might be preferable (Greenberg 1987, 332). But at least it is clear.

Implicit within such thinking is the Darwinian evolutionary model, first made explicit for languages in graphic form by Schleicher (1863), that the languages under comparison, if they are judged to be related, are 'sprung from some common source' (Jones 1786), that is to say from a hypothetical ancestral language or proto-language. For instance the languages which Sir William Jones recognized in 1786 as related, and which were regarded as belonging to a language 'family' later termed Indo-European, were assumed all to be the descendants of a hypothetical ancestral language, Proto-Indo-European. Population groups would have become divided or separated through the circumstances of history, and the language or dialects spoken by them would become increasingly different, through isolation and the passage of time, until the languages of these groups could be

regarded as different. The process is analogous to that of genetic drift.

The Romance languages formed the prime exemplar for many early historical linguists, being evidently descended from a proto-language which in this case was not hypothetical but known, namely late Latin. The individual Romance language (French, Spanish, Romanian etc.), were seen to stand in the same relation to Latin as did Latin, Old Slavonic, classical Greek etc. to Proto-Indo-European. All this is familiar enough and generally accepted. One of the great tasks of Indo-European comparative linguistics has been to understand the phonological regularities, the sound shifts, which led from the ancestral Latin to the various Romance languages, and in the same way from the reconstructed Proto-Indo-European to its descendant language families.

The Nostratic approach undertakes the analogous but bold task of going one step further back in time, from the language families in question, each with its ancestral proto-language, to a further and earlier hypothetical ancestor, Proto-Nostratic, which would, in a similar way be the ancestor of Proto-Indo-European, Proto-Uralic etc. The Nostratic macrofamily would thus include the various families (Indo-European, Hamito-Samitic, Uralic etc.), just as these (e.g. Indo-European) contained the specific sub-families (Romance, Slavonic, Germanic etc.) and languages (French, Polish, Dutch etc.).

The detailed development of this theory has been the work principally of two scholars (see Kaiser & Shevoroshkin 1988), namely Vladimir Illich-Svitych and Aharon Dolgopolsky. Illich-Svitych (1989; 1990; and references in the paper by Dolgopolsky) was unfortunately killed in a road accident in August 1966, and his work is only now becoming more widely known in the west (Bulatova 1989). Aharon Dolgopolsky developed the principal ideas independently and then was for some time a colleague of Illich-Svitych; he subsequently emigrated from Russia to Israel (Dolgopolsky 1973, and references in his paper).

The concept which thus emerged, as glimpsed by Pedersen, was of a much larger superfamily or macrofamily or linguistic phylum than had previously been proposed, embracing a whole series of lesser families. At its heart, at some very early time (set by many Nostratic scholars as some time before 15,000 BC), lies the notion of the Nostratic proto-language, a higher level proto-language, the common ancestor of all the proto-languages within the group.

The language families which Illich-Svitych and Dolgopolsky recognized as having a common ancestral family relationship in this way are:
- the Indo-European language family
- the Afroasiatic family
- the Dravidian family
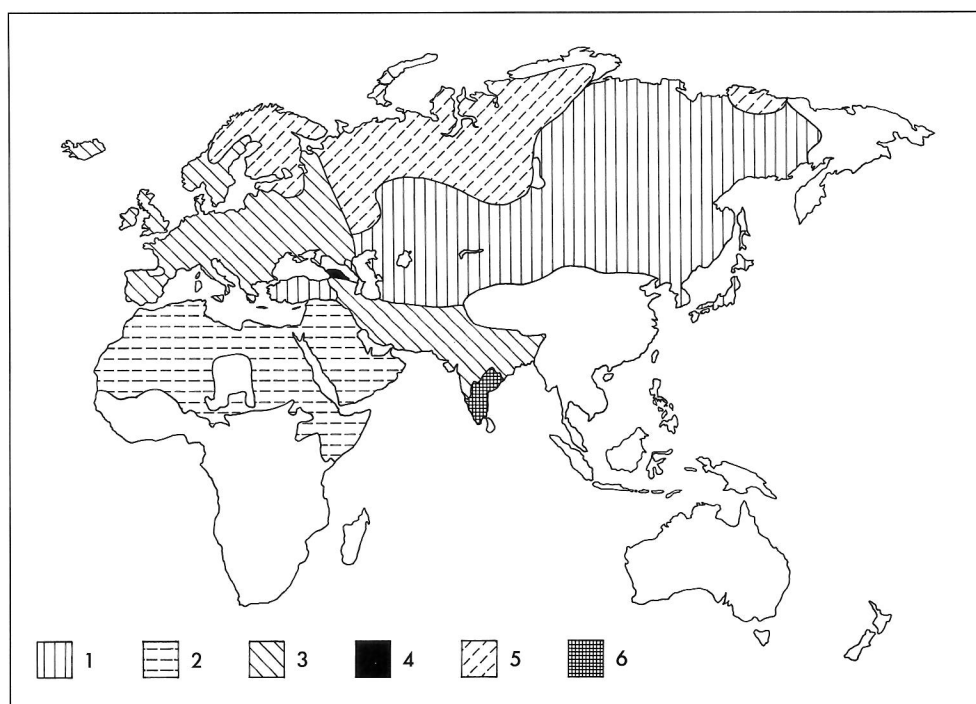
Figure 1. *The Nostratic macrofamily. The present-day distribution of the language groups within the Nostratic macrofamily. The constituent language families are: (1) Altaic; (2) Afroasiatic; (3) Indo-European; (4) South Caucasian (Kartvelian); (5) Uralic; (6) Dravidian.*

- the Altaic family
- the Kartvelian (South Caucasian) family
- the Uralic-Yukaghir family.

This offers an astonishing and breathtaking perspective — a vast linguistic panorama (Fig. 1). The present extent of the Indo-European family, that is to say the land occupied by its speakers, covers most of Europe, plus Iran, Pakistan, and much of India along with Sri Lanka (not to mention the products of later colonization in the Americas and the southern hemisphere).

The Afroasiatic language family itself is of very considerable extent (Fig. 2): it is often termed 'Hamito-Semitic' (see Diakonoff 1965; 1988). Since the 1920s its reality as a real family grouping, to be regarded as the descendant of a single ancestral language (i.e. Proto-Afroasiatic or Proto-Hamito-Semitic), has been generally accepted (Meillet & Cohen 1924; Cohen 1947). It coincides to a considerable extent with the grouping recognized by Joseph Greenberg (1963) and termed by him 'Afroasiatic'.
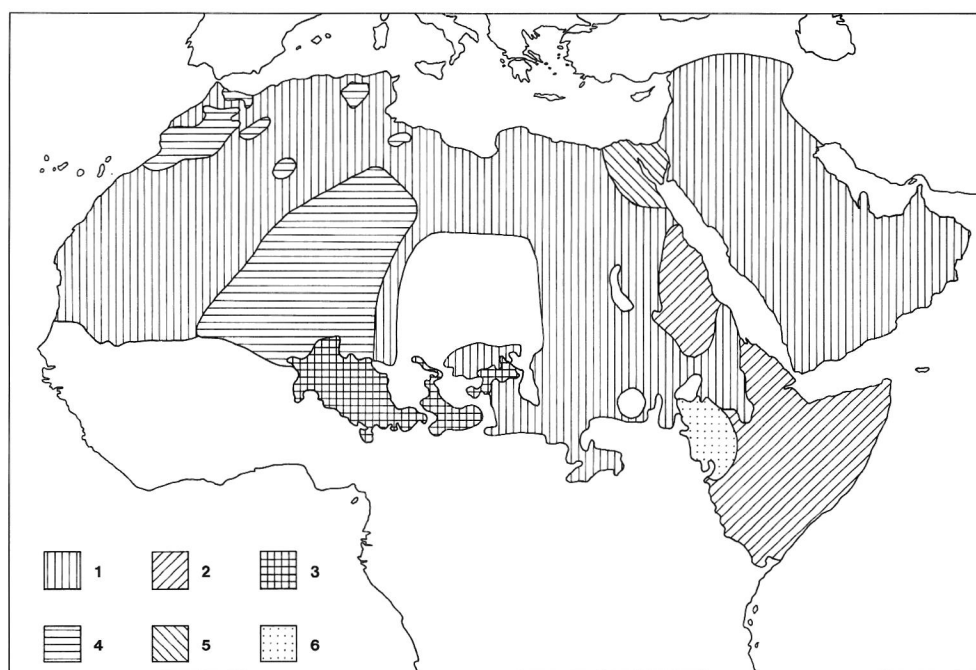
Figure 2. *The Afroasiatic languages. The present-day distribution of languages within the broader language groups which have themselves been classified together within the Afroasiatic family or macrofamily. The constituent language families are as follows: (1) Semitic; (2) Cushitic; (3) Chadic; (4) Berber; (5) Ancient Egyptian; (6) Omotic. (Based on Ruhlen 1991, 86)*

The Altaic language languages are not generally recognized as forming so close-knit a family as the above (Miller 1991), indeed as Ruhlen (1991, 130) puts it: 'There is no consensus today on either the membership or the subgrouping of the Altaic family'. It should be noted that in the discussion which follows Dolgopolsky now includes Korean and Japanese within the Altaic family.

There is considerable convergence between the position of the Nostratic scholars and that adopted by Greenberg (1987, 259) for his Eurasiatic macrofamily, as set out in detail by Ruhlen (1991, 383). It should be noted, however, the Greenberg would include the Eskimo-Aleut languages and Chukchi-Kamchatkan, as well as Ainu and Gilyak within the Eurasiatic macrofamily, while excluding the Afroasiatic, Kartvelian and Dravidian families. So although the macrofamily concept is similar in each case, there are very significant differences. It is to be hoped that these matters will be discussed in some detail when Dolgopolsky's paper is circulated for comment.

The archaeological background to Nostratic

To each language family there must be some underlying archaeological reality. When various populations speak related languages, this circumstance must be the result of concrete historical processes, operating at specific places and at particular times. Linguists have generally assumed (with the notable exception of Trubetzkoy (1939)) that the languages of such a family are indeed the descendants of a proto-language, and that this will have been spoken by a group of people at a given place and time. Archaeologists have generally accepted this view, and have therefore sought the ancestral homeland of the speakers of the proto-language. Such has certainly been the case, for instance, with the Indo-European languages, and the search for the homeland of the Proto-Indo-Europeans, well discussed by Mallory (1989), has been an exhaustive one, still without definitive outcome.

If the Nostratic hypothesis be accepted, the problem becomes a very much bigger one. What sort of homeland does one envisage for the ancestral Proto-Nostrtatic language far back in time, very possibly in the later part of the Upper Palaeolithic period? Is it really appropriate to speak, in this case, of a restricted homeland for a well and perhaps narrowly defined group of people?

Here Dolgopolsky's paper gives rich food for speculation. He has used the methods of linguistic palaeontology to give what seems like a remarkably full description of what might be regarded as the original environment of the Proto-Nostratic speakers before some of them thought it preferable to leave the area. I have myself argued for caution when making use of a hypothetical protolexikon (Renfrew 1987, 77–82). Earlier generations of archaeologists have argued that the Proto-Indo-Europeans must have been pastoralists rather than agriculturalists, on the grounds that very few words for domesticated food plants are reconstructed into the protolexikon. But more recently archaeologists have come to realise that early Eurasian pastoralists must have been familiar with the crop plants of their agricultural contemporaries. So the absence of such terms from the protolixikon must be viewed as unexplained happenstance rather than as the absence of such elements from the original environment of the Proto-Indo-Europeans. This caution on negative evidence need not, however, detract from the real significance of positive occurrences, so long as the possibility of semantic shift is borne in mind.

The linguistic relationships between neighbours in the Nostratic macrofamily would seem to carry some implications for the location of the speakers of the relevant proto-languages, some considerable time ago. Such arguments led
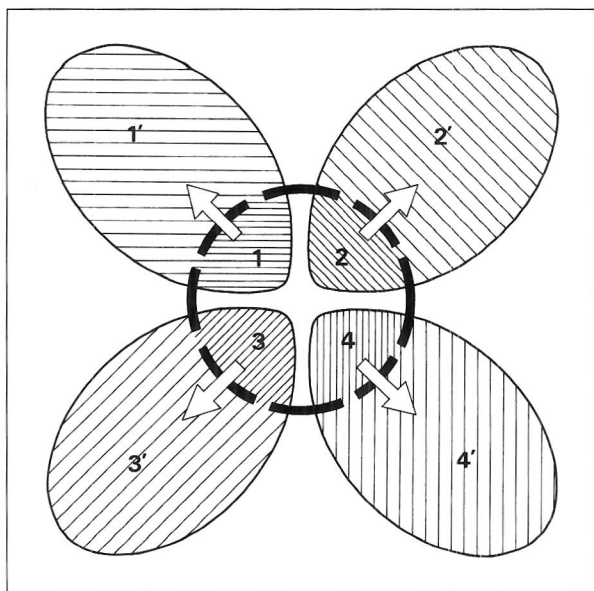
Figure 3. *Idealized model showing the relation between farming origins and language dispersal. When a transition to primary farming occurs within an area with some linguistic diversity (shown within the broken circle) the consequence of the agricultural dispersal is likely to be a series of linguistic replacements in adjoining areas. The lobes represent the areas occupied by the resulting language families derived from the corresponding proto-languages. Such processes may underlie the distribution of several of the world's linguistic macrofamilies: the corresponding version of this hypothesis for the Nostratic macrofamily is represented in Figure 4. (After Sherratt & Sherratt 1988.)*

Dolgopolsky, on purely linguistic grounds, to place the homeland of the speakers of Proto-Indo-European in central Anatolia (Dolgopolsky 1987; 1993), and led Gamkrelidze and Ivanov (1984; 1990; see Gamkrelidze 1990) to locate it in eastern Anatolia (although without adopting the Nostratic hypothesis).

I have suggested (Renfrew 1996) that the distributions of a number of the world's language families may be explained in terms of agricultural dispersals (see Bellwood 1996; Diamond 1997), and that what may hold for the Indo-European family (Renfrew 1987) might similarly be applicable to the other members of the Nostratic macrofamily. This idea is neatly summarized in a diagram devised by Andrew and Susan Sherratt (Sherratt & Sherratt 1988).

It can be suggested, therefore, that the distribution of the languages of the Nostratic macrofamily may be due, at least in part, to processes of agricultural dispersal, and that the original homeland of the Proto-Nostratic speakers lay in western Asia. It is postulated, in particular, that the speakers of Proto-Indo-European were at home in central Anatolia, and the speakers of Proto-Afroasiatic in the Levant, perhaps to be associated with the very early Neolithic of sites such as Jericho. The proposed relationship between the Dravidian languages and Elamite (McAlpin 1974; 1981) may be adduced here, and a homeland for Proto-Elamo-Dravidian located in southwestern Iran (the modern Khuzistan) suggested, where very early farming is well documented at sites such as Ali Kosh. For Proto-Kartvelian, the southern Caucasus might
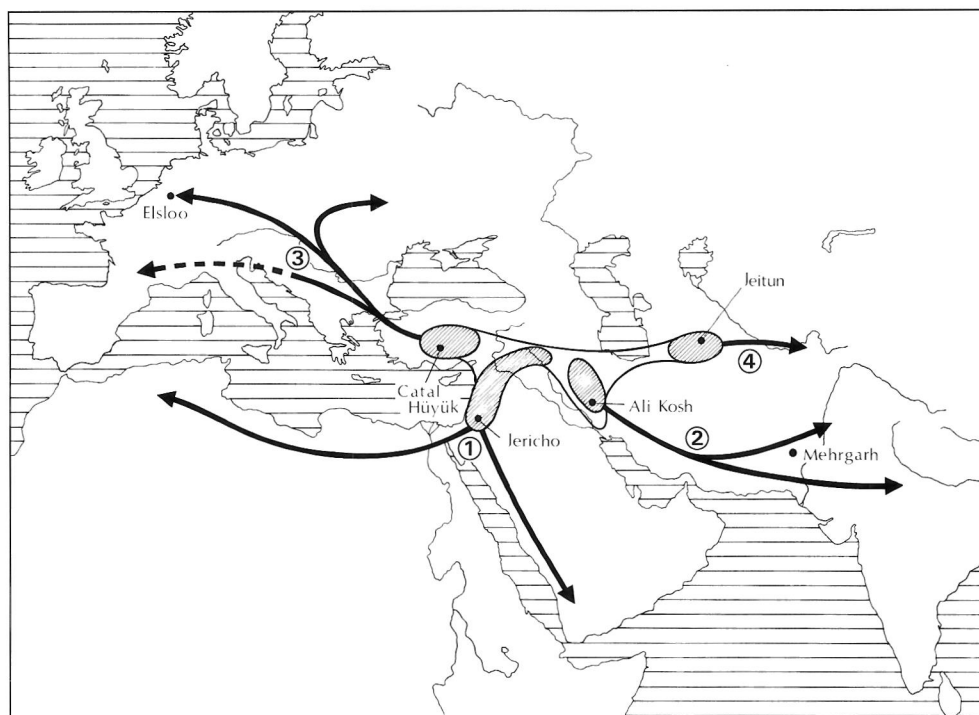
Figure 4. *Hypothetical application of the model shown in Figure 3 to account for the distribution of the Nostratic macrofamily. Agricultural dispersals of the related protolanguages originally located within the area where primary farming developed (hatched) are postulated as underlying the subsequent distributions of the (1) Afroasiatic, (2) Elamo-Dravidian, (3) Indo-European, and (4) Altaic language families.*

itself lie within the primary zone of agricultural origins, or close to it. And Proto-Altaic might have been spoken in Turkmenia, a region of very early agricultural production. If these are the points or areas of departure around 7000 BC for the early processes of farming dispersal, we can imagine a rather earlier Proto-Nostratic, perhaps already with regional dialects, spoken over a territory including most of these areas, which in particular may well have embraced the region where the Pre-Pottery Neolithic A farming economy first developed (Bar-Yosef 1989) (see Fig. 4).

The appropriate location for the speakers of Proto-Uralic-Yukaghir is less clear, and the region between the Ural mountains and the lower Ob river of western Siberia has been suggested (Hajdu 1964), with a possible dispersal northwards by speakers of the Finno-Ugrian branch to the region of northeastern Europe and the Ural mountains. Nor is it evident that its speakers were in fact agriculturalists. Professor Dolgopolsky has indicated (pers. comm.) that the lexical data

show that the speakers of Proto-Finno-Ugrian and probably of Proto-Uralic did not have agriculture, husbandry or pottery but were excellent fishermen. There was indeed a population dispersal northwards, into the Ural mountains and north-western Asia at the end of the Pleistocene period, but the economy was for long one based upon fishing and gathering as well as hunting (see Dolukhanov 1994).

Insofar as these theories involve actual movements of people they may ultimately be open to evaluation by means of molecular genetics. Already aspects of the distribution of gene frequencies in the relevant areas have suggested early population movements compatible with the suggestions made here (Barbujani & Pilastro 1993; Barbujani *et al.* 1994). Further work may well offer support and corroboration, or the converse. If the above suggestions do find support, they will offer a whole new perspective upon the prehistory of Europe, western Asia, south Asia and the Asiatic steppes, as far indeed as Korea and Japan. These are big issues.

It follows from these considerations that Proto-Nostratic would represent the language in its original area of distribution of the population at a time before these various agricultural dispersals took place, and therefore prior to the full development of the Neolithic economy. Such a view may harmonise very well with the content of the word lists developed here by Dolgopolsky which seem to represent the world of the Upper Palaeolithic or Mesolithic hunter-gatherer, apparently prior to the inception of a farming economy.

Problems with macrofamilies

These intriguing speculations are, however, predicated upon the validity of the Nostratic hypothesis. It is relevant, therefore, to take note of the criticisms which have been levelled, by competent linguists, at a number of cases where the proposed amalgamation of language families into macrofamilies is claimed to be of genetic validity.

In colloquial terms, it has been suggested that individual linguists tend to be either 'lumpers' or 'splitters'. The former are quick to see relationships, and to acknowledge the existence of larger linguistic units: they are predisposed to look favourably upon macrofamilies. The splitters, on the other hand, are meticulous in their scholarship, and apt to find fault with individual etymologies and comparisons. Having found fault they are likely to doubt the generalisation, and to place reliance instead upon smaller language units about which they can have greater confidence.

The senior historical linguist among the lumpers must be Joseph Greenberg, whose analysis of the African languages (Greenberg 1963) into just four

macrofamilies (one of them Afroasiatic, as discussed above) was initially criticized upon methodological grounds. The principal criticism was that he relies upon multiple lexical comparisons, comparing directly the words in contemporary languages, without attempting the reconstruction of the relevant proto-languages, following the well-established comparative method, according to the normal practice of historical linguists. Despite this criticism, his classification of the African languages has proved so convenient that it has been adopted almost universally, although that does not necessarily imply that all linguists see the groupings as valid genetic units rather than as simple taxonomic conveniences.

However when Greenberg turned to the languages of the Americas (Greenberg 1987) his work provoked much greater opposition, and indeed sometimes hostility (e.g. Campbell 1986). The objections were broadly the same as in the African case, but they were not so easily overcome. Interestingly there has been what seems strong support for his work from the field of molecular genetics, where 'tribal private polymorphisms' — molecular genetic particularities restricted to a single tribe — suggest not only long periods of stability and relative genetic isolation, but also some support for his overall structure of taxonomic relationships. It is perhaps too early to draw firm conclusions, but there is the hope that evidence from molecular genetics will cast more light upon population histories which may in turn have a bearing upon language history also.

In other parts of the world inclusive macrofamilies are certainly being proposed. In southeast Asia, the proposed recognition of an Austric macrofamily (Blust 1993) has formed the basis for the bold archaeological reconstruction of population movements (Higham 1996). Bellwood (1996) has noted a number of other such cases where agricultural may have been accompanied by language dispersal. But these are proposals about supposed correlations between the archaeology and the historical linguistics: they do not, in themselves, validate the existence of the proposed macrofamilies.

When it comes to the Nostratic hypothesis, some of the criticisms levelled at the work Greenberg may not hold. For both Illich-Svitych and Dolgopolsky have worked to analyze the relevant sound correspondences, very much within the tenets of the Brugmannian method. Nonetheless Anna Morpurgo Davies (1989, 167) has well expressed the reservations which a number of senior historical linguists clearly feel:

> Linguists seem to be relatively clear about what a language family is. If we say that two languages are related, i.e. ultimately derive from the same parent language, we also predict that the further back we go in time the more similar the forms of the two languages will turn out to be — this may be particularly clear for grammatical forms. If I assume that Greek and Iranian

are related I also predict that ancient Greek must be closer to Old Persian than Modern Persian. On the other hand I do not see any reason to predict that Early Tamil (a non-Indo-European language) must be closer to Ancient Greek than to Modern Greek. We make these predictions with some confidence because over the years we have developed and tested the method which we use to demonstrate linguistic kinship. This obviously starts by comparing words but then goes back further and makes use of regular phonological correspondence and, if possible, of morphological comparison. On the other hand, if we take as an example of how superfamilies are established the latest book by J. Greenberg about the languages of America, we discover that there the methodology is very different. Greenberg does not rely on phonological or morphological correspondences, but on what he calls 'multilateral comparison', i.e. on lexical similarities studied in a number of languages at the same time. He jettisons the standard techniques not because they lead to wrong conclusions but because they do not allow him to go beyond standard families. Yet we do not know whether superfamilies established in this way have the same properties as the families established with the standard comparative method. If they do not, there is a serious risk that the whole concept of superfamily is vacuous. At the moment it is not clear to me whether this is or is not so and I would like some enlightenment.

The operational difficulty lies in each case in developing some methodology which will allow doubts and reservations about the real existence of macrofamilies to be followed through and tested. It should again be noted however that the criticisms levelled against Greenberg's method of multilateral comparison are not entirely appropriate in the case of the Nostratic macrofamily, whose exponents do indeed establish phonological correspondences, and seek to use the standard comparative method (see Anttila 1972)

It is, as Ruhlen (1991; 1994) has remarked, often the more traditional Indo-Europeanists who are most hostile to such approaches, particularly when the outcome does not harmonise with what they sometimes consider to be well established conclusions. This is well exemplified by a recent, authoritative work which pronounces as follows (Sergent 1995, 398: my translation):

> Moreover a whole school of linguists holds that Indo-European, Semito-Hamitic, the groups of languages termed 'Altaic' (Uralic, Turk, Tungus, Mongol), Dravidian, and more besides, form a single immense group termed 'Nostratic'. A Russian team has thus formed the 'Moscow Nostratic circle' to study these relationships (Dolgopolsky 1986). In reality they are based essentially on vocabulary, and the structure of the languages is scarcely considered (indeed the group called 'Altaic' is in this sense an artificial one). Among all these comparisons, only those between Indo-European and Semito-Hamitic appear to rely upon early and deep relationships.

It should be understood that such observations must perforce be based upon rather brief accounts of the Nostratic hypothesis: Sergent refers only to short articles by Dolgopolsky and Illich-Svitych. Dixon's recent and severely negative assessment ('There us no reputable historical linguist anywhere in the world, who accepts the claims of Greenberg and the Nostraticists') may work from simi-

lar limitations (Dixon 1997, 37–44). It will therefore be interesting to see whether so dismissive a tone can be maintained in face of the more ample word-lists offered here, and ultimately in the light of Dolgopolsky's forthcoming *Nostratic Dictionary*.

How to judge?

There must be some means, within the field of historical linguistics, of reaching a conclusion on such matters. It is not difficult to see that corroborative data can come from other disciplines. We have seen that statements from historical linguistics which have a bearing upon population history may well be tested by archaeological means, and in particular by applications of molecular genetics. But such applications can never tell us anything *directly* about a specific language, or about linguistic relationships *per se*.

The evidence for such familial (or macrofamilial) relationships has always come primarily from individual words, and more persuasively from collections of individual words. These are precisely what Aharon Dolgopolsky offers in the main body of his text. When words of equivalent or related meaning occur in two languages (or more), and the forms of those words suggest that, taking account of systematic sound changes, they may derive from a hypothetical common ancestor, then there is strong evidence of family relationship. Of course there are provisos about the exclusion of loan words etc. But one can at once see that such arguments in favour may be criticized on at least three grounds. First the semantic equivalence may not be so close as to inspire confidence. Secondly the proposed regularities for sound change may not be sufficiently precise as closely to determine the two versions in the two languages concerned. And thirdly the formal equivalences may not carry conviction: the similarity may not be sufficient. All these issues have to be assessed soberly for each specific case.

Already such disagreements have developed with reference to comparisons between constituent language families of the Nostratic macrofamily. Klimov (1991) criticized the equivalences between Kartvelian and Indo-European offered by Illich-Svitych for a number of words in his substantial Nostratic vocabulary. Several of Klimov's objections were, in turn, subject to criticism by Manaster-Ramer (1995) who took a more favourable view of the original proposals.

Clearly the arguments in favour may carry greater conviction when appropriately derived word forms carrying the relevant meaning are found in a whole series of languages within the macrofamily. But the sceptic may claim that when the number of constituent languages is large (as in the Nostratic case) the likeli-

hood of some apparent formal equivalences occurring here and there among them just by chance is commensurately greater. Ultimately these are questions in the field of probability, but they are very difficult to assess quantitatively.

Perhaps all that one may hope for is precisely what Dolgopolsky here offers: a large number of concrete cases presented for our consideration. To a layman it seems improbable in the extreme that the equivalences which he shows would be the product of purely random variations among words which in fact have no genetic relationship. But that is an assessment by a non-specialist. What we await is the judgement of specialists. There is no doubt that the Nostratic hypothesis, if considered valid, is of the highest interest to prehistorians, and indeed to those concerned with population history, as well as to historical linguists. But it is for the historical linguists in the first instance to decide whether the evidence on offer is sufficient to lead to the general acceptance of the hypothesis.

Acknowledgements

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The Nostratic Macrofamily and Linguistic Palaeontology

Aharon Dolgopolsky

Classification of the Nostratic languages

Classification of the Nostratic languages

I. Indo-European

A. *Anatolian*: Hittite, Luwian, Hieroglyphic Luwian, Palaic, Lydian, Lycian;

B. *Narrow Indo-European*: (1) Indo-Iranian (Aryan): [1a] Indo-Aryan: Old Indian, Middle Indian (Pali, Prakrits), New Indo-Aryan lgs., [1b] Iranian: Avestan, Old Persian, Middle Persian (Pahlavi), New Persian, Tajik, Kurdish, Sogdian, Yaghnobi, Pushtu (Afghan), Pamir languages (Wakhi, etc.), Khotan Saka, Old Scythian, Ossetic, etc., [1c] Nuristani and Dardic languages (incl. Kafiri); (2) Greek, Macedonian; (3) Phrygian; (4) Thracian, Dacian, Albanian; (5) Illyric, Messapic; (6) Italic: Latin (with the Romance languages), Oscan, Umbrian; (7) Venetic; (8) Celtic: Gaulish, Celtiberic, Goidelic (Old Irish, Middle Irish, [New] Irish, Scottish Gaelic), Brythonic (Welsh, Cornish, Breton); (8) Germanic: Gothic, Old Runic Scandinavian, Old Norse, Icelandic, Faroese, Swedish, Danish, Gutnian, Norwegian, Old High German, Middle High German, New High German, modern German dialects, Yiddish, Old Saxon, Middle Low German, Dutch (with Afrikaans), Anglo-Saxon (Old English), Middle English, English; (9) Balto-Slavic: [9a] Baltic: Lithuanian, Latvian, Prussian, [9b] Slavic: Old Church Slavonic, Church Slavonic, Bulgarian, Macedonian Slavic, Serbo-Croatian, Slovene, Czech, Slovak, Low Lusatian (Low Sorbian), High Lusatian (High Sorbian), Polabian, Polish, Old Russian, Russian, Belorussian, Ukrainian; (10) Armenian; (11) Tocharian.

II. Hamito-Semitic (Afroasiatic)

A. *Semitic*: (1) Eastern Semitic: Akkadian, (?) Eblaitic; (2) Central Semitic: [1] Canaanite: Old South Canaanite, Hebrew, Phoenician (with Punic), Ugaritic, Amorite, etc., [2] Aramaic lgs.: Old Aramaic, Imperial Aramaic, Jewish Aramaic, Syriac, Mandaic, etc., [3] Arabic, Maltese, Thamudic, Safa'itic, etc.; (3) South Semitic: [1] Old South Arabian (Sabaic, Minaean, Qatabanic, Himyaritic, etc.), Ethiosemitic: Old Ethiopian, Ge'ez, Tigre, Tigray (Tigrinya), Amharic, Harari, Gurage lgs., etc., [2] South-East Semitic: Mehri, Harsusi, Jibbali, Soqotri, etc.;

B. *Egyptian*: [Ancient] Egyptian, Demotic Egyptian, Coptic;

C. *Berber*: Old Libyan (Numidian), Twareg (Ahaggar Twareg, Eastern Tawellemmet, Tayert, Ghat, etc.), Kabyle, Tashelhit, Tamazight, Rif, Beni-Iznacen, Srar-Senhazha, Mzab, Wargla, Nefusi, Siwa, Ghadamsi, Aujila, etc.; Guanche;

D. *Cushitic*: (1) Beja; (2) Agaw (= Central Cushitic): Awngi, Bilin, Kemant, Kwara, Khamir (Khamtanga), etc.; (3) East Cushitic: [1] Lowland East Cushitic: Afar, Saho, Somali, Boni, Rendille, Baiso, Oromo (Galla), Konso, Gidole, Arbore, Dasenech, Dullay cluster (Tsamay, Hollango, Gawwada, Harso, etc.), Yaku, [2] Highland East Cushitic: Sidamo, Darasa, Hadiya, Kambatta, Burji, etc., (4) Dahalo (not yet classified); (5) South Cushitic: [1] Iraqw, Alagwa, Gorowa, Burunge, [2] Asa, Kwadza, as well the Cushitic layer of loanwords within Mbugu;

E. *Omotic*: (1) North Omotic: Kaffa, Mocha, Anfillo, Shinasha, Ometo dialect cluster (Gofa, Wolayta, Dawro, Oyda, Basketo, Badditu, Doka, Zayse, Kachama, Chara, Ganjule, Zergulla, Male, Dache, Gamu, etc.), Janjero, Bench, She, etc., (2) Dizoid: Maji, Na'o, Shako, (3) South Omotic: Ari, Bako, Dime, Hamer;

F. *Chadic*: (1) West Chadic: [1a] Hausa, Gwandara, [1b] Angas-Goemay: Angas, Sura, Goemay (Ankwe), Kofyar, Montol, Yiwom (Gerka), Chip, Tal, etc., [1c] Bole-Tangale: Bole, Dera, Karekare, Tangale, Pero, Kirfi, Bele, Gera, etc., [1d] Ron gr.: Bokkos, Daffo. Butura, Fyer, Kulere, Sha, Tambas, [1e] North Bauchi lgs.: Warji, Tsagu, Kariya, Mburku, Miya, Pa'a, Siryanchi, Diri, Jimbin; [1f] South Bauchi: Boghom, Dwat, Guruntum, Jimi, Polchi, Saya, Wangday, Zar, Kir, Dira, Geji, etc., [1g] Ngizim, Bade, Duwai; (2) Central Chadic: [2a] Tera gr.: Tera, Ga'anda, Pidlimti, etc., [2b] Bura-Margi gr.: Margi, Bura, Chibak, Kilba, Wamdiu, etc., [2c] Higi gr., [2d] Bata-Bachama gr.: Bata (Bata-Garua & Bata-Demsa), Bachama, Nzangi, Gude, Gudu, Fali of Jilbu, Fali of Muchella, Fali of Bwagira, Mwulyen, etc., [2e] Lamang, [2f] Mandara gr.: Mandara, Dghwede, Glavda, Gava, Nakatsa, Padokwo, etc., [2g] Sukur, [2h] Matakam gr.: Giziga, Mafa, Mofu-Gudur, Matakam, etc., [2i] Daba, Kola, Musgoy, [2j] Gidar, [2k] Kotoko: Logon, Kotoko, Buduma, Affade, etc., [2l] Musgu gr,: Musgu, Musgum-Pus, Mulwi, etc., [2m] Masa lgs.: Masa, Bana, Banana, Lame, Lame-Peve, Zime, Zime-Batna, etc.; (3) East Chadic: [3a] Kera, Kwang, [3b] Kabalay, Lele, [3c] Somray, Ndam, Tumak, [3d] Sokoro, [3e] Dangla, Bidiya, Mokilko, Migama, [3f] Mubi, Jegu, Birgit.

III. Kartvelian

(1) Old Georgian, Georgian; Zan: Megrelian, Laz, (2) Svan.

IV. Uralic (Uralo-Yukagir)

A. *Finno-Ugrian*: (1) Finno-Permian: [1a] Finno-Lappish; {1aα} Balto-Finnic: Finnish, Karelian, Estonian, Livonian, etc., {1aβ} Lapp (Lappish), [2] Erzya-Mordvin and Moksha-Mordvin, [3] Cheremis, [4] Permian: Old Permian, Ziryene, Permyak, Yazvian dial., Votyak; (2) Ugrian: [2a] Hungarian, [2b] Ob-Ugrian: Vogul and Ostyak;

B. *Samoyedic*: (1) Nenets, Enets, Nganasan, (2) Sölqup, (3) Kamassian, Koibal, (4) Mator-Taigi-Karagas;

C. *Yukagir*.

V. Altaic

A. *Turkic*: (1) Bulghar gr.: Old Bulghar, Chuvash; (2) Narrow Turkic: Old Turkic, Middle Turkic, Old Uighur, [2a] Oghuz: Old Osman, Middle Osman, Osman Turkish, Turkish, Gagauz, Azeri, Türkmen, Salar, etc., [2b] Qïpchaq: Old Qïpchaq, Middle Qïpchaq (incl. Cumanic), Qumïq, Qarachay-Balqar, Crimean Tatar, Karaite, Volga Tatar, Siberian Tatar dialect cluster, Bashqurt (Bashkirian), Noghay, Qazaq, Qaraqalpaq, etc., [2c] Qïrgïz, Standard Altay, Altay-Kizhi, Qumanda, Quu-Kizhi, Teleut, [2d] Chaghatay, Uzbek, East Turkic (New Uighur), [2e] Khakas, Saghay, Qacha, Shor, Chulïm, Beltir, Sarïg-Yugur, [2f] Tuva, Tofalar, [2g] Yakut, [2h] Khalaj;

B. *Mongolic*: Middle Mongolian, Classical (Written) Mongolian, Halha-Mongolian, Buryat, Classical (Written) Oirat, (New) Oriat, Kalmuck, Ordos, Dagur, Monguor, Dongxiang (Tunghsiang), Baoan, Old Moghol, Moghol;

C. *Tungusic (Manchu-Tungus)*: [1] Ewenki, Negidal, Solon, Lamut, [2] Nanay, Orochi, Ulcha, Ude, Orok, [3] Manchu: (Classical [Written] Manchu, spoken Sibe Manchu), Jurchen;

D. *Korean*;

E. *Japanese*.

VI. Dravidian

(1) South Drav.: Tamil, Malayalam, Kota, Toda, Tulu, Kannada, Kodagu, (2) South-Central Drav.: Telugu, Gondi, Konda, Manda, Pengo, Kui, Kuwi, (3) Central Dravidian: Gadba, Kolami, Naiki of Chanda, Naikri, Parji, (4) Northern Drav.: Kurukh, Malto; (5) Brahui.

For a more detailed and comprehensive classification of languages (and dialects) *cf.* my *Nostratic Dictionary* (in preparation).

The Linguistic Palaeontology of the Nostratic Macrofamily

Transcription signs and other symbols

In my papers I distinguish between transcription (rendering the phonemes and allophons of the language in question) and transliteration (rendering the characters of the original script). For transcription (as well as for reconstructions) a unified transcription script is used: a, b, c, d, e, etc., while for transliteration (as well as for rendering the original Roman spelling of the language in question and for literal quoting of other scholars) a special transliteration-quotation script is used: a, b, c, d, e, etc.

The transliteration is either traditional (for languages with long scholarly tradition of transliteration, such as Old Indian, Avestan, Gothic, etc.) or partially approaching our transcription system (e.g. for Egyptian we use z, s, ħ, χ, x́, c and ȝ instead of Erman-Grapow's s, ś, ḥ, ḫ, ḥ, ṯ and ḏ respectively, for the ancient Semitic languages we use ħ, χ, ɣ, θ, δ, θ̣ and ŝ instead of the traditional ḥ, ḫ, ġ, ṯ, ḏ, ẓ and ḍ of the Orientalistic transcription). For Tamil, Malayalam, Tulu, Kannada and Telugu we use the traditional indological transliteration.

Main transcription signs:

I. Consonants:

ʔ — glottal stop; ' — weak glottal stop, sub-phonemic glottal stop, glottal stop as a feature of an adjacent phoneme; ʕ — epiglottal voiced approximant (Arabic ع); bʼ (= ɓ) — injective glottalized or preglottalized b; β (= ḇ) — fricative b; c — voiceless hissing affricate (= $\widehat{ts}$), like german z in Herz; cʼ — glottalized (ejective) c, Nostratic emphatic c; ć — palatal (or palatalized) voiceless sibilant affricate (≈ Polish ć); ćʼ — ejective ć, Nostr. emphatic ć; č — voiceless hushing affricate (like English ch); čʼ — ejective č, Nostr. emphatic č; ĉ — voiceless lateral affricate; ĉʼ — ejective lateral affricate, Nostr. emphatic ĉ; c̀ (in proto-Kartvelian) = Klimov's c_1; c̀ʼ (in proto-Kartvelian) = Klimov's c'_1; ɕ — voiceless palatal stop (like Hungarian ty); ɕ — voiceless lingual affricate (without phonemic distinction between c, ć, č and ĉ) or a voiceless palatal or sibilant consonant (without phonemic distinction between affricates and ɕ or between sibilant affricates and pure [fricative] sibilants); dʼ (= ɗ) — injective glottalized or preglottalized d; ḍ — uvularized ('emphatic') d, like Modern Standard Arabic ض; δ (= ḏ) — voiced fricative dental (English th in this, Spanish d in nada); δ̣ — uvularized ('emphatic') δ, like Arabic ظ; ḍ = postalveolar (cacuminal, cerebral, retroflex) d; φ (= p̄) — fricative voiceless bilabial consonant (bilabial f); ǵ (= ɠ) — injective glottalized or preglottalized g; g = voiced uvular stop; ɣ — voiced velar fricative (fricative g), like in Spanish trigo; ɣ — voiced uvular fricative (like Arabic غ); ɣ — uvularized

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('emphatic') voiced uvular fricative; ħ — voiceless epiglottal fricative (like Arabic ح = ḥ of the Orientalistic Transcription); j — voiced palatal fricative (like the initial consonant in French hier [jɛ̄ʁ]); ɟ — voiced palatal stop (like Hungarian gy); k' — ejective k, Nostr. emphatic k; ĺ — palatal (or palatalized) l, like Italian gli in voglio; ļ — postalveolar (cacuminal, cerebral, retroflex) l; ł — velarized l (like Russian л); ɬ — voiceless l; ɬ̣ — voiceless ḷ; λ - a special type of palatal l (different from ĺ), as in Uralic and Finno-Ugrian, where *λ stands for the traditional (FUV) *δ́ - (in the word-initial position); ɼ — consonant intermediate between r and l; ŋ — velar or uvular nasal consonant (like ng in English long); ń — palatal (or palatalized) n, like French gn in régner; ṇ — alveolar n (like Tamil n̲); ǹ (= ŋ) — postalveolar (cacuminal, cerebral, retroflex) n; p' — ejective p, Nostr. emphatic p; q — voiceless uvular stop (like Arabic ق); q̇ — ejective uvular stop, Nostr. emphatic q; ɽ — cerebral flap or tap (like Spanish r in cara, or like Hausa r in sarki); ṛ — alveolar trill (in contrast to post-dental) [ṛ = r̤ of Dravidianist notation]; R — uvular flap or tap; ʙ — uvular trill (like German r); š — voiceless hushing sibilant (like English sh); ś — palatal (or palatalized) s (≈ Polish ś, Russian сь); ŝ — voiceless lateral consonant; ṣ — uvularized ('emphatic') s, like Arabic ص ; t' — ejective t, Nostr. emphatic t; ṭ — postalveolar (cacuminal, cerebral, retroflex) t; ṭ — uvularized ("emphatic") t, like Arabic ط ; θ (= t̠) — voiceless dental (or interdental) fricative (like English th in thin); θ' — ejective θ; x (= k̠) — voiceless velar fricative (like Russian х); χ — voiceless uvular fricative (like Spanish j and Arabic خ) = ḫ of the Orientalistic Transcription; y — palatal approximant (like y in English yes); z — voiced hissing sibilant (like in English zoo); ž — voiced hushing sibilant (like French j); ź — voiced palatalized sibilant (like Polish ź or Russian зь); ẓ — uvularized ('emphatic') z, like in Berber (ẓ of the Orientalistic Transcription); ẑ — voiced lateral fricative; ẓ̂ (= δ̣) — uvularized ('emphatic') ẑ (or δ̂), like 8th cent. Arabic ض ; ʒ — voiced hissing affricate (= d̂z), like in Italian zoologia; ǯ — voiced hushing affricate (like English j); ʒ́ — voiced palatal (or palatalized) affricate (like Polish dź); ʒ̀ (in proto-Kartvelian) = Klimov's ʒ₁; ʒ̂ — voiced lateral affricate; ʒ — voiced lingual affricate (without phonemic distinction between ʒ, ʒ́, ǯ and ʒ̂) or a voiced palatal or sibilant consonant (without phonemic distinction between affricates and ɟ or between sibilant affricates and pure [fricative] sibilants).

Laryngeal consonants of Early Indo-European: h — weak (yielding zero in Anatolian Indo-European) a-colouring laryngeal (≈ Puhvel's *A₂); ĥ — weak (yielding zero in Anatolian) e-colouring laryngeal (≈ Puhvel's *E₂); hʷ — weak (yielding zero in Anatolian) o-colouring laryngeal (≈ Puhvel's *A₁ʷ); x —

strong (yielding һ, h h in Hittite) a-colouring laryngeal (≈ Puhvel's *A₁); x̂ —
strong (yielding һ, h h in Hittite) e-colouring laryngeal (≈ Puhvel's *E₁); xʷ —
strong (yielding һ, h h in Hittite) o-colouring laryngeal (≈ Puhvel's *A₂ʷ); н
= ħ|x; ĥ = ħ|x̂; нʷ = hʷ|xʷ; ħ — weak laryngeal (lost in Anatolian) of unknown
colouring (≈ Puhvel's *H₂); x — strong laryngeal (yielding һ, h h in
Anatolian) of unknown colouring (≈ Puhvel's *H₁); ʔ — weak laryngeal
(yielding zero in Anatolian), lost in zero-grade of apophony (unlike all other
laryngeals, which yield Narrow Indo-European *ə in the zero-grade of
apopony); н — unspecified laryngeal (≈ Puhv.'s *H).

2. Vowels:
ä (= æ) — front low vowel; å —vowel intermediate between ä and a; ӑ —
labialized low vowel; ɐ — high a; ɑ - back a; ʌ — central low-mid vowel (in
Korean ʌ = Korean {Lee} ʌ, {Starostin} ã, {Ramstedt} ə); ɛ — front low-mid
vowel; ə — ultra-bref (reduced) central vowel, or ultra-bref vowel without
phonologic distinction of quality (in Chuvash ə = orthographic ĕ); ɘ — back mid
vowel (like Estonian õ; in Korean ɘ = Korean {Lee} ə, {Starostin} ə, {Ramstedt}
ĕ); ɩ — low i (like i in English bit); ɨ — high mid vowel (like Russian ы); ɪ—
high back vowel (as Turkish ı); ɔ — labialized back low-mid vowel (like British
English o in dog); ö (= œ) — labialized front mid vowel (labialized e); ӧ —
labialized front low-mid vowel (labialized ɛ); ӧ̇ — vowel intermediate between
ö and o; ɯ, ɷ (= oʾ) — high o, intermediate between o and u; ѳ — centralized o; ∘
— non-phonemic vocoid; ̥ — non-phonemic vocoid (schwa secundum) in proto-
IE; ̥ — preconsonatic voiceless vowel glide (as in Lappish) [the same sign is
used when the final part of the preceding vowel is voiceless (as in Lule-
Lappish, as described by Wiklund: ̥ = Wiklund's ɔ)]; ʊ — low u; ü — labialized
front high vowel (labialized i), like German ü and French u; ÿ —labialized
front lowered high vowel (labialized ɩ); ü̇ - vowel intermediate between ü and
u; ʉ — centralized u; ъ — ultra-short back vowel (= ə̂ of the Finno-Ugric
Transcription) [ъ = Chuvash ӑ, Volga Tatar and Bashqurt short ы, High
Cheremis ы]; ъ̊ — ultra-short rounded back vowel (= Volga Tatar and Bashqurt
o); ь — ultra-short (reduced) front vowel [ь = Volga Tatar, Bashqurt э, е (after
a consonant)]; ь̊ — ultra-short rounded front vowel (= Volga Tatar, Bashqurt ɵ);
з — central mid vowel.

3. Diacritical signs:
(1) with consonant letters:
ʾ (sʾ, tʾ, bʾ) — glottalization (both ejective and voiced injective), including
preglottalization, in Nostratic reconstructions it denotes an emphatic

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articulation (without commitment as to its exact phonetic articulation: glottalization, aspiration or tenseness); ̪ (d̪, z̪, t̪) — uvularization ('emphasis', as in Arabic and Berber); ' (to the right of the letter: t', k', p') — fortis; ‾ (to the right of the letter: t̄, k̄, p̄) — lenis; ʰ (to the right of the letter: tʰ, kʰ, pʰ)— aspirate; ʰ (to the left of the letter: ʰt, ʰt, ʰt) — preaspirate; _ (to the right of the letter: b_, g_, d_, z_, r_, l_, m_, n_, ŋ_) — devoiced or half-voiced = small caps of the Finno-Ugric Transcription; _ (under the letter: b̲, d̲, g̲, k̲, p̲, t̲, q̲) — fricativity resulting from lenition (fricative variants of phonemes or morphophonemes, as in Hebrew, Aramaic and Berber); ̪ (t̪, d̪, n̪) — alveolar (in contrast with dental or post-dental) consonant [t̪, d̪, n̪ = t, d, n of the Dravidianist notation]; ʸ (to the right of the letter: kʸ, gʸ, χʸ) — palatalization; ̈ (over the letter) or ˙ (to the right of the letter) — weak palatalization (e̤- palatalization); ʷ (to the right of the letter: kʷ, gʷ, χʷ) — labialization; ~ (over the letter) — nasalization; ` (s̀, ǹ, etc.) = ̦ (ș, ḷ, etc.) — postalveolar or retroflex consonants; s̓, z̓, s̓ —domal infradental infralabialized sibilants, like in Central Jibbali (Johnstone's s̃, z̃, s̃) or in Twi (Ghana) [s̓ = [ʪ] of the IPhA transcription];

(2) with vowel letters:
~ denotes nasality: ã = nasal a [in Slavic languages nasality is denoted by a cedille: ą = ã]; ˀ (over the letter) denotes creaky phonation of vowels: ỉ is creaky ɪ (and Tuva ыъ), while ỉ is creaky i (and Tuva иъ); ' and ʰ (before the letter) denote "interrupted" vowels (in Ude) (the sign chosen in accordance with the source: ʰ if the source indicates a kind of ɦ); ̦ (under the vowel letter) denotes close vowels (e̒ = ᴇ, closed e) [in Tungusic it denotes vowels of the higher series of synharmonism]; _ (under the vowel letter) denotes open vowels (e̲ = ɛ) [in proto-Tungusic and Tungusic languages it denotes the vowels of the lower series of vowel harmony]; ' denotes retracted vowels (a' = retracted a); ' denotes advanced vowels (a' = advanced a); ̦ (under the letter) — broadened vowel; ̭ (under the letter) — narrowed vowel; ̈ denotes front vowels (ä, ü, ö); ˙ denotes half-front vowels (ȯ, u̇); ̦ denotes glides (English my [maɪ̯], Spanish bien [bi̯en], bueno ['bu̯eno]); _ (to the right of the vowel letter) denotes devoiced vowels (as in Japanese and Oromo prosody).

4. Quantitative differences of vowels:
Vowel letters without diacritics of length or shortness denote short vowels (in languages with an opposition short vs. long) and normal ('full') vowels (in languages with an opposition normal vs. ultra-short and with a triple opposition long vs. short vs. ultra-short) [an exception: special letters for

ultra-short (reduced) vowels ə, ъ, ь]; ˘ is a sign for short vowels, e.g. ă; ˘ (on the higher supralineal level) denotes an ultra-short vowel, e.g. ă; letters followed by · denote half-long vowels; letters with a macron ¯ or with a following colon : denote long vowels; letters followed by :· denote ultra-long vowels.

5. Tones and stress

' (before the syllable) — full stress; ₁ (before the syllable) — weak stress. The tones are denoted mostly by supralineal signs over vowels, e.g. by signs of the second supralineal level (higher than regular supralineal signs): ´ — high tone [in Korean and Japanese this sign is quoted after Starostin's papers]; ` —low tone [in Kor. and Jap. this sign is quoted after Starostin's papers]; ' — middle tone; ^ — falling high-to-mid tone; ^ — falligh high-to-low tone; ^ — falling mid-to-low tone; ˇ — rising low-to-high tone; ` — rising low-to-mid tone; ˅ — rising mid-to-high tone (mid rise tone); ˮ – high rise tone (as in Wedekind's records of Janjero); ˋ — very low tone; ˮ —very high tone. In proto-Slavic reconstructions the syllabic intonation (Slavic accents) are denoted according the Slavistic tradition.

6. Uncertainty signs, signs of reconstruction

| "or" (a|e means "a or e").

Capital letters denote classes of phonemes: P = unspecified labial stop, T = unspecified dental stop, Kʾ = kʾ|q, H = unspecified laryngeal, X = ħ|χ, Γ = ʕ|ɣ, L = unspecified lateral resonant, R = unspecified vibrant, flap or tap, N = unspecified nasal consonant; C = unspecified affricate, З = unspecified voiced affricate, S = unspecified sibilant (or lateral obstruent) [s, ś, š, ŝ, z, ź, ž, ẑ, Kartv. ṡ], Ẑ = ẑ|ẑ, U = unspecified round vowel, E = unspecified front vowel.

∇ (or V) is un unspecified vowel.

⊥ (in reconstructions) is an unspecified consonant; in formulas we use C as a general sign for consonant.

X̆ is an unspecified back vowel (or unspecified non-front vowel).

⌐¬ — uncertainty brackets: ⌐a¬ = a or similar.

⌊⌋ — uncertainty brackets: ⌊a⌋ = a or nothing.

* — sign of reconstruction.

*○ — a reconstruction based on one daughter- or granddaughter-language only.

** — a questionable reconstruction or a result of "internal reconstruction".

? — a questionable Nostratic etymology, or a questionable cognate.

?σ — a semantically doubtful connection.

?φ — a phonetically doubtful connection.

?μ — a morphologically doubtful connection (the derivation is not clear, the root structure is deviant, etc.).

amb — a word\root is ambiguous, i.e. may have two (or more) different etymologies.

¿ — a questionable reconstruction of a daughter-language, or (before '...') a questionable semantic interpretation of a reconstructed or an attested word; 'the sign '¿' before a language name means that the very existence of the form in question is dubious.

ι — a possibly ideophonic root (incl. onomatopoeic and Lallwort).

⁎ — sign of a non-existing form or a non-existing meaning.

err. — erroneously.

7. Other signs

√ — consonantic verbal root (in the Hamito-Semitic languages); ~ — variant forms; ᵈ — dialectal variants; / — apophonic and other morphological variants of a root\stem distributed according to their morphological function; \ = "or", "and\or" (e.g. in definitions of meaning and among alternative hypothetic reconstructions); ↦ — source of borrowing, borrowed to (**a** ↦ **b** = '**b** borrowed from **a**'); ↤ — borrowed from (**a** ↤ **b** = '**a** borrowed from **b**'); ⇾ — source of derivation (**a** ⇾ **b** = '**b** derived from **a**'); ⇽ — derived from (**a** ⇽ **b** = '**a** derived from **b**'); || — bar between primary families of languages (Hamito-Semitic, Kartvelian, Indo-European, Uralic, Altaic, Dravidian, Elamic); ||| — bar between secondary families (Anatolian IE, Narrow IE, Semitic, Egyptian, Cushitic, Chadic, Finno-Ugrian, Samoyed, Yukagir, Turkic, Mongolian, Tungusian, Korean) within one family: e. g. Turkic ||| Mongolic ||| Tungusic (within Altaic); ⁞⁞ — bar between branches of families (e.g. Germanic, Balto-Slavic, East Cushitic, Central Chadic, Finno-Permian, Ugrian); ⁞ — bar between subbranches (e.g., Slavic [within Balto-Slavic], Iranian [within Indo-Iranian], Baltic Finnic, Ob Ugrian, Bole-Tangale); ¶ — sign preceding comment referring to a secondary family; ¶¶ — sign preceding comment referring to a primary family; ◇ — sign preceding comment referring to a Nostratic etymon; ÷ = 'akin to', 'a cognate of'.

The Linguistic Palaeontology of the Nostratic Macrofamily

1. The Nostratic macrofamily

This is a hypothetic macro-family of languages, including Indo-European, Hamito-Semitic [= Afroasiatic] (Semitic, Egyptian, Berber, Cushitic, Omotic and Chadic), Kartvelian, Uralic (Finno-Ugric, Samoyed and Yukagir), Altaic (Turkic, Mongolic, Tungusic [Manchu-Tungus], Korean and Japanese), and Dravidian. The hypothesis is based on a large amount (more than 2000) of common roots and many common grammatical morphemes, in which regular sound correspondences have been established (*cf.* Illich-Svitych 1967; 1968; 1971–84; Dolgopolsky 1964; 1969; 1970; 1984; 1989; 1992; 1995). Among the most important resemblances is that of personal pronouns and inflectional person-markers of the 1st and 2nd persons (*m˅ for 'I' in Indo-European, Uralic, Altaic and Kartvelian, *ṭü > *ṭi for 'thou' in Indo-European, Hamito-Semitic, Uralic, Mongolic, etc.), that of interrogative pronouns (originally *ḳo for 'who' and *mi for 'what', preserved entirely or partially in Indo-European, Hamito-Semitic, Kartvelian, Uralic and Altaic), basic lexical roots such as *ʔeśo 'stay' (> 'be') preserved in Indo-European (*es-), Hamito-Semitic, Uralic and Kartvelian, *ʔitä 'to eat' (Indo-European, Ham.-Sem., Mongolic), *bari 'to take' (all branches except Uralic), *wet˅ 'water' (all branches except Kartvelian), *nimʔ˅ 'name, to name' (Indo-European, Hamito-Semitic, Uralic, Altaic), as well as words connected with culture of the final palaeolithic age, e.g., *kälu 'woman of another moiety' > words for 'daughter-in-law', 'sister-in-law' and 'bride' in Indo-European (Latin glos, Greek γάλως, Slavic *zol˅-), Semitic, Uralic, Altaic and Dravidian. The original Nostratic phonology (as reconstructed by V. Illich-Svitych and A. Dolgopolsky) had a rich consonant system (opposition of voiced — voiceless — emphatic [= ejectives or fortes], three series of sibilants and affricates, lateral obstruents, laryngeal, pharyngeal and uvular consonants) and 7 vowels. The grammatical structure was, most probably, analytical with a rigid word order (a sentence-final verb, attribute precedes its head, pronominal subject follows its verb) and with grammatical meanings expressed by word order, postpositions (*nu for genitive, *ma for marked accusative, and others) and grammatical pronouns.

2. Language relationship and history

What historical evidence is provided by comparative linguistics?

A. The very fact of certain languages being related suggests that the corresponding ethnic entities had some sort of historical connection: either common origin or at least intimate cultural relationship (the latter for the case of transmitting a language to neighbours, conquered peoples, etc.). If there is an Indo-European language family, it means that there had to be an ancient linguistic community of speakers of Proto-Indo-European and there were historical conditions responsible for the common origin of different Indo-European descendant languages.

B. Loanwords in a language provide evidence for cultural connections between the borrowing and the lending language. If the loanwords denote trade articles, they suggest routs of ancient trade. If they are not names of merchandise, they prove that the two language communities were neighbours. Semitic loanwords in proto-IE, Indo-European loan-words in Kartvelian, absence of proto-Indo-European loanwords in Uralic, proto-Aryan (proto-Indo-Iranian) loans in Finno-Ugric are very important arguments helpful in resolving the problem of the Indo-European homeland (*cf.* Dolgopolsky 1975; 1987; 1988; 1993; the results coincide with those of Renfrew 1987).

C. The analysis of meaning of the words present in a proto-language (the common ancestor of languages in a family) casts some light on the way of life, geographical, historical and cultural parameters of the corresponding linguistic community. The traditional name of this field in linguistics is *palaeontology of language,* or *linguistic palaeontology* (*cf.* Pictet 1859–1863, Pisani 1938), or (in reference to Indo-European) *Indo-European antiquities* (Schrader 1901).

In dealing with linguistic paleontology we must be aware of dangers resulting from the unsteadiness of meanings of words, from the very fact that every language is adapted to the communicative requirements of the corresponding society and epoch, and therefore may lose words and meanings which were important in the remote past, but are not any more today. When feathers as an instrument of writing were replaced by metallic pens, the word for 'feather' was transmitted to 'pen' (French plume, German Feder, Russian pero, etc.). The Samoyeds of today use the ancient word for 'arrow' to denote the bullet. If the concepts and meanings which were important in the past, but are not any more today, the language often cannot afford the luxus of preserving special roots for such out-of-day concepts and meanings and replaces them by more economic (from the point of view of memory) derived or compound words and phrases. Thus, the ancient rich and complicated system

of kinship terms for relatives by marriage (important in a patriarchal society of clans and large families) is replaced in modern English by -in-law-constructions, and in French by beau-/belle-compounds. Instead of the Indo-European words *daiwēr 'husband's brother', *syēuros 'wife's brother' and *sweliyos 'wife's sister's husband' the English say indiscriminately brother-in-law, and the French use the courteous construct beau-frère. For the Indo-European *ĝlōus 'husband's sister' and *yenatēr 'husband's brother's wife' the English say sister-in-law, and the French say belle-sœur (which is gallant for ladies, but useless for historical linguistics) [cf. Delamarre 1984, 38–43]. Sometimes ancient words are preserved, but precious semantic nuances have been lost. Thus, we can reconstructs scores of Nostratic words for cutting, and we may guess that there were semantic differences between them (different ways of cutting, directions of cutting, material of cutting, goals of cutting), but all these 'subtle' differences (subtle for the modern languages, but precious for historians and relevant for those ancient people) have been lost. In this respect we the linguists may envy the archæologists who have direct information about the ancient tills and ways of cutting. *Verba volant, lapides manent.*

Nevertheless, comparative linguistics (making use of historical phonology, morphology, and typology of semantic changes) can provide important information or at least confirm the existing archæological and anthropological information about ancient people, their life and culture.

3. Where and when?

Let us try to use linguistic palaeontology of the Nostratic macrofamily in order to determine the geographical and temporal parameters of the common Nostratic linguistic community.

3.1. Where?
The reconstructible Nostratic lexical stock (according to my comparative dictionary — in preparation) suggests subtropical climatic conditions in the original home of Nostratic. A Middle European or Siberian homeland is ruled out by words like *ʔibrE 'fig tree', *Siw∇ŋgE 'leopard', *ʔˈüˈr∇w∇ 'leopard' or 'lion', *ĉˈiˈb∇y∇ 'hyena', *ʔorˈuˈ and *gurHa (below #[36]) 'antelope', etc. Tropical countries are ruled out by words for *šüŋU and *čaî̩U̩g∇ 'snow', *ḳir̩u̩qa 'ice', *č̣ˈaˈRʔ∇ 'hoarfrost', etc.

[1] *ʔibrE 'fig tree' > **Hamito-Semitic**: Semitic *°ˈʔibar- > Arabic ʔibr-at- 'sycomore tree' (pl. ʔibar-) ||| Cushitic: Oromo abru 'fig tree' ||| Chadic: Giziga ʔurof ~ ʔɜrof 'sycomore tree'; ? Hausa ɓaure (<*ɓabre), with ɓ > *ʔb; ? Migama bârá (pl. bàrrì) 'figuier (rouge)' || **Dravidian** *ir- ~ iṛ- 'fig (tree)' > Tamil iraṭṭi 'joined ovate-leaved fig', 'subserrate rhomboid-leaved fig, *Ficus gibbosa tuberculata*', iraṭakam 'joined ovate-leaved fig', iṛali 'white fig', iṛṛi 'tailed ovate-leaved fig', itti 'white fig, *Ficus infectoria*', 'stone fig, *Ficus talboti*', Malayalam itti 'waved leaved fig-tree, *Ficus venosa*', Kodagu itti '*Ficus (gibbosa?)*' (< -tt-*-rt-).

[2] *ĉʼiˈb∇ɣ∇ (or *ĉʼiˈb∇ʕ∇) 'hyena' > **Hamito-Semitic**: Semitic *ˈ§̂abuʕ- ~ *§̂aˈbuʕ- id. > Post-Biblical Hebrew (Babylonian tradition) çāˈbōʕ, Biblical Hebrew (Masoretic trad.) צָבוּע çāˈḇūᵃʕ 'hyena' (popular etymology interpreting the word as a passive participle צָבוּע çāˈḇūᵃʕ 'a died one'), pl. צְבוֹעִים çəḇōˈʕ-īm, Syriac ʔapʕ-ā (ʔ- < ʕ- by dissimilation), Arabic ضَبُع §̂abuʕ- ~ ضَبْع §̂abʕ-, Ge'ez ፀብዕ §̂abʕ 'hyena' || **Altaic**: Tungusic *çib|pka > Ayan Ewenki çipkaku 'wolf' || **Dravidian** *ɕiv∇ŋki 'hyena, tiger-wolf' or sim. > Kannada sivaṅgi 'tiger-wolf, hyena', Telugu civãgi, civvãgi, civvaṅgi, sivãgi, sivaṅhi, sivvaṅgi 'hyena', as well as Tamil civiŋki 'Indian lynx, hunting leopard', Malayalam civiŋŋi 'hunting leopard' ◇ In Drav. there is coalescence of the etymon in question and Nostr. *ɕiw∇ŋgE 'leopard'.

[3] *ʔ⸢ü⸣ʕ∇w∇ 'large feline' > **Hamito-Semitic**: Semitic *ʔarˈy̆ay- 'lion' or sim. > Hebrew אַרְיֵה ʔarˈyē, אֲרִי ʔᵃˈrī 'lion', Biblical Aramaic אַרְיֵה ʔarˈyē, pl. ʔarˌyāwāˈtā, Jewish Aramaic אַרְיָא ʔarˈyā, Syriac ʔarˈyā 'lion', as well as Ge'ez ʔarwē 'wild beast' ||| Egyptian rw 'lion' ||| East Chadic: Mubi ʔórúwà 'lion', Migama ʔářúm 'lion', Tumak ɜrɜw 'leopard' || ?? Central Chadic: Musgu àhìráw id. | Lamang árvárè | Mandara ʔuruvʷɜrì, Glavda arɜvara, Gava ʔúrvárà, Dghwede àrvírè 'lion' | Kotoko rávəni id. || **Altaic**: Turkic *irbiˈ⸢ʔ⸣ or *irbilç 'leopard' > Old Turkic irbiš ~ irbič 'leopard', Tuva irbiš id.; Turkic ↦ Class. Mong. irbis, Halha-Mongolian irwes 'panther, leopard'; Mongolic ↦ Altay irbis 'leopard' || **Dravidian** *uřuv- 'tiger' > Tamil uřuvai, Telugu ḍuvvu, Kolami ḍuv, ḍū, Gondi ḍū, ḍūal 'tiger', ḍuwāl, ḍuwwal 'panther'.

[4] *Siw∇ŋgE 'leopard' > **Indo-European** *siŋǥʰo- 'leopard' or 'lion' > Armenian inʒ, ənʒu 'leopard' ‖ Old Indian simha-ḥ 'lion' ‖ Tocharian A śiśäk, B ṣecake 'lion' ‖ **Hamito-Semitic:** East Cushitic *zagum 'leopard' > Tambaro zeguʹma, Sidamo dagūn-čo ‖‖ Chadic: Hausa zákî, Gwandara šákʸi ‖ Kotoko závəni ‖ Mokilko sùwwú, Kwang sèmki, sémgí id. ‖ **Altaic:** Tungusic *sibiᵉgᵉe 'large beast of prey' > Tungir Ewenki siwig͂ə ~ hiwig͂ə 'wolf', Ayan Ewenki siwiyз 'bear', Ola Lamut hзwyȯ ~ hзwyз, Okhotsk Lamut hзwзyз id., Orochi sīwi (name of a mythical dog) ‖ **Dravidian** *civ∇ŋki 'leopard' and sim. > Tamil civiŋki 'Indian lynx, hunting leopard', Malayalam civiŋŋi 'hunting leopard', Kannada sivaŋgi 'tiger-wolf, hyena', Telugu civãgi, civvãgi, civvaŋgi, sivãgi, sivaŋhi, sivvaŋgi 'hyena' ◇ In Dravidian there is coalescence of the etymon in question and Nostr. *ĉᵉiᵉb∇ɣ∇ (or *ĉᵉiᵉb∇ʕ∇) 'hyena'

[5] *ʔoᵉuᵉ 'antelope (male), deer' > **Hamito-Semitic:** Semitic *ʔarwau̯- > Akkadian arwium 'gazelle (male)', Arabic أُرْوِيَّة ʔurwiyyat- (pl. أُرْوَى ʔarwā) 'mountain goat', Geʹez ኦርዌ ʔarwē 'beast, animal' (merger of two roots) ‖‖ Cushitic: Dahalo ʔár̄ōle 'eland' ‖ **Altaic:** Mongolic: Class. Mong. oruŋgu, Halha-Mongolian, Buryat oroŋgo 'a kind of small dark antelope with long flat horns' ‖‖ Tungusic *oron 'reindeer' > Ewenki oron, Lamut orъn, Negidal oyon, Orochi oro, Ude oro~olo, Ulcha oro(n-), Nanay orõ 'domestic reindeer', Manchu oron buχu id. ‖ **Dravidian** *uᵉr̄-ay-ᵤ 'deer' > Tamil ur̄ay, Tulu uræ, ule 'deer', Parji ur̄up 'spotted deer'.

[6] *maŋᵉgᵉ∇ or *maNᴸiᵤᵉgᵉ∇ 'monkey' > **Hamito-Semitic:** East Chadic: Mubi móŋgò 'small black monkey' ‖ **Altaic:** Tungusic *moń́o > Manchu monio moń́o '(a kind of) yellowish monkey with a short tail', Sibe-Manchu mɔń(u), Northern Manchu mзń́u 'monkey' ‖ **Dravidian** *maŋk- 'monkey' > Malayalam moŋŋa, Kannada maŋga, Koraga maŋgi 'monkey', Tulu maŋge id., 'ape' ◇ The origin of English monkey and of the Romance word *monna (> Spanish, Portuguese mona, -o 'monkey', Italian monna, French mone 'female monkey') remains rather obscure. They may be loanwords of unknown origin. Nothing is known about their possible connection with Nostr. *maŋᵉgᵉ∇ 'monkey'.

[7] *šüŋU 'snow' > **Indo-European** *sneig^{wh}- 'to snow', *snig^{wh}-, *snoig^{wh}- n. 'snow' > Old Indian *snēha- > Prakrit siṇeha- 'snow', Shugnani žəniž id., Avestan snaēža- 'to snow' ¦¦ Greek νίφ-α (accus.) 'snow', νείφει 'it snows' ¦¦ Latin nix (gen. nivis) 'snow', nivit 'it is snowing' ¦¦ Middle Irish snecht(a)e 'snow' (with a *t-suffix like in Greek νιφετός 'falling snow, snowstorm'), Irish sneachta, Welsh nyf 'snow', nyfio 'to snow' ¦¦ Old High German, Anglo-Saxon snīwan 'to snow', Old Norse snýr 'it snows', Gothic snaiws, Anglo-Saxon snāw, Old High German snēo, English snow, German Schnee, Danish sne, Swedish snö 'snow' ¦¦ Lithuanian sniẽgas, Latvian sniˋegs, Prussian snaygis 'snow' ¦ Slavic *snĕgъ id. > Old Church Slavonic сиѢгъ snĕgъ, Russian снег, Polish śnieg, Czech sníh, Croatian sniẽg, Serb снѐг, Bulgarian сняг ¶ The prehistory of the word may be represented as follows: *šüŋU > *šiŋU > *šingU > *snigu > IE *sneig^{wh}- (for details of the vowel changes see Dolgopolsky 1995, 17–22) ¦¦ **Uralic:** Finno-Ugric *šüŋe 'wet snow' > Finnish hyy 'ice, melting snow' ¦ proto-Lappish *sōvē 'snow with ice and water' > Norwegian Lapp suovve 'wet snow' ¦¦ **Altaic:** Tungusic *süŋü 'hoarfrost, snow' > Ewenki siŋi-ksɜ id., siŋi-lgɜn 'snow', Nanay suŋgu 'hoarfrost', Classical Manchu su(ŋ)- 'to become covered with hoarfrost'¦¦¦ Turkic *seŋ (or *säŋ) 'ice floe, block of ice' > Qazaq, Nogay seŋ id., Qaraqalpaq seŋ 'ice, ice floe' ('лед, льдина') ¦¦¦ Mongolic *söŋ > Class. Mong. söŋ, Halha-Mongolian сөнг söŋ, Kalmuck söŋ 'small pieces of ice in a river' ¦¦¦ Japanese śimo 'hoarfrost, frost' ¦¦ ? **Hamito-Semitic:** Egyptian šny.t, šnˁ 'haily weather'.

[8] *čaḷU̯g∇ 'snow' or 'hoar-frost' > **Hamito-Semitic:** Semitic *ˈθalag- 'snow' > Hebrew שֶׁלֶג ˈšɛlɛg, Aramaic תְּלַג təˈlag, status emphaticus תַּלְגָּא talˈgā, Syriac st. emph. ܬܰܠܓܳܐ talˈg-ā, Arabic ثَلْج θalğ-, Akkadian šalg-u 'snow' ¦¦? Berber: Kabyle a-salu, pl. i-sula 'couche de neige' ¦¦ **Uralic:** Finno-Ugric *ˈčˈaḷṷ̮∇ > proto-Vogul *šaḷ- 'hoar-frost' > Southern Vogul šaḷ, šåḷ, Western and Eastern Vogul šaḷ, Northern Vogul soḷ ¦¦ **Altaic** *ɡˈaḷika > Turkic *toḷ 'ice' > Old Turkic toš 'glacier in the mountains', Altay, Tuba, Qumanda toš, Tuva doš, Tofalar d_ɔ̄š 'ice', Volga Tatar tuš 'water over the ice of rivers\lakes (наледь)', Yakut tohō- 'to break ice in a

river'||| Tungusic *ȷalka 'fine snow' > Negidal ȷalka id., ȷalka- 'to snow' (of fine snow).

[9] ?? *č̣ʳaʾR̥ʔ∇ 'hoar-frost', (>) 'frozen soil' > **Hamito-Semitic:** Semitic *°√θrʔ > Arabic ظُؤْر ðurʔ- 'frozen earth, frozen mud'|| **Kartv.** *°čχ|qar- > Tush Georgian čχar-i 'hoarfrost' || **Altaic:** Mongolic *ɔar > Class. Mong. ɔar, Halha, Kalmuck цар 'layer of frost on the surface of snow; hard crust on snow' ||| Turkic: Teleut čarɨm id.

[10] *ḳirₗu‚qa 'ice, hoarfrost; to freeze' > **Hamito-Semitic:** Semitic *'ḳar‚∇‚χ- 'ice' > Biblical Hebrew קֶרַח ḳεraħ 'ice, frost', Syriac ḳarħ-ā, Akkadian ḳarχ-u 'ice', Akkadian √krχ (inf. ḳarāχu) 'freeze' ||| ? Berber *√krr > Rif aḳarra 'grêle' ||| ? East Cushitic: Oromo ḳorra 'cold, coldness', ḳorra 'to freeze, make cold', Sidamo ḳorra 'frost, hoarfrost, severe cold', ḳorra 'to be\feel cold, freeze', Darasa ḳōrra 'frost' ¶¶ The Berber and Egyptian roots may alternatively go back to Nostr. *Ḳarh∇ 'ice, hoarfrost' || **Kartvelian:** Lechkhumuri Georgian ḳruχ-wa n. 'cold' ('Kälte') || **Indo-European** *ḱerₗəₗ-, *'ḱernos 'ice crust, snow crust, hoarfrost' > Armenian saṙn (gen. saṙin) 'ice' ¦¦ Germanic (< *'ḱernos): Old Norse hȷarn 'snow crust', Old High German hornunc 'February' (← *'month of ice\snow-crust') ¦¦ proto-Slavic *sérnъ (gen. sernà) (< *'ḱernos) > Russian Church Slavonic срѣнъ srěnъ, Old Russian serenъ, Polish śron ~ śrzon 'hoarfrost', Bulgarian 'серен 'snow that has frozen together', Czech střín, stříní 'ice on branches of trees', Russian (dial.) се'рён, Slovene srẽn, Russian, Ukrainian 'серен 'frozen hard snow' ¦ Latvian sērns id. (< *'ḱernos); with other derivational suffixes: Lithuanian šerk̃šnas, Latvian sērksnis, sęrsna 'hoarfrost' || **Uralic:** [1] Finno-Ugric *°kir∇ > Ob-Ugric *°kīr > proto-Ostyak *kīr 'snow-crust' > Eastern Ostyak kir, Northern Ostyak ker id. ¦¦¦ [2] with a suffix: Finno-Ugric *kirte ~ *kerte 'snow-crust, frozen soil' > Finnish kirsi (obl. cases kirte-) 'frost on the ground, ice-crust', kersi 'thin snow-crust', Estonian kirs 'ice layer' ¦ Highland Cheremis kart 'snow-crust' ¦¦ East. Ostyak kȧˑrd‚əm ~ kȧrtəm 'thin snow-crust' || **Altaic** *k'ir∇ 'snow, hoarfrost': Turkic *k'ıra-gu 'hoarfrost' > Old Turkic qıraɣū, Chagatay qıraw 'hoarfrost that falls from the sky', Xwarazmi Turkic qıraɣu, Old Qïpchaq qırawū,

Cuman kɪrov, Turkish kɪraǧu, Türkmen gɪrav, Azeri gɪrov, Yakut kɪrɪa, Tuva χɪrā 'hoarfrost'; another derivative: Turkish kɪrc̣ 'abundant hoarfrost', Gagauz qɪrč 'hoarfrost, white frost' ||| ? Mongolic *kira-guˌnˌ 'hoarfrost' > Middle Mongolian kiraʔu, Class. Mongolian kiragu(n), Halha хяруу, Ordos kirū, Buryat хюруу, Dongxiang qɪreu, Kalmuck кируɣ kirü 'hoarfrost', Mongolic *kira-mag 'fine snow, first snow' > Class. Mongolian kiramag, Halha хярмаг, Buryat хирмаг ~ хярмаг id., Kalmuck kirmãg id., 'newly-fallen snow'.

If the Nostratic ancient homeland is in a subtropical region, we face a problem of choice: was it in Southern Europe or in the Southwestern Asia? There are two words suggesting an answer: *Sahˌiˌb∇ 'saline earth, desert' and *tälwA (or *talwä) 'cold season, rain'.

[11] *Sahˌiˌb∇ 'saline earth, desert' > **Dravidian** *cava 'brackish\saline earth' > Tamil cavaṭu 'earth impregnated with soda, alcaline soil, sediment; fuller's earth', Tulu cavuḷь, cavuḷu 'brackish, saline', Telugu cauḍu 'fuller's earth' || **Hamito-Semitic:** Semitic *°šahb- (or *sahb-) > Arabic sahb- 'desert, desert with saline earth' ||| East Cushitic *zib- 'desert' > Saho dib-o, Afar dub-u, Benadir Somali dib-ad, Rendille yip id. || **Altaic:** Turkic *sāy 'stony desert' > Old Turkic sāy id., Chaghatay (15th c.) say 'a river that flows in the winter and is dry in summer' || **Uralic** *ś|śoɣwa 'clay' [contamination with Nostr. *śabˈʔˈ∇ 'soil, clay'] > Ter Lapp čuȷ̄vɛ, Kildin Lapp čuūɣə 'Ton, Lehm' ⋮ Permian *śoɣ 'clay' > Ziryene cëй śoɣ, Upper Sïsola Ziryene śọɣ, Yazvian 'śůɣ, Votyak cюй śuȷ ||| Samoyedic: Taz Sölqup sö 'earth, soil; clay', Koibal se 'Ton'.

[12] *tälwA or *talwä 'cold season, rain' > **Indo-European** *del- 'rain, dew' > Armenian teł 'heavy rain', tełam, -em, -um 'to cause to rain heavily, open the windows of heaven' ⁞ Middle Irish delt 'dew', Breton delt 'moist' || **Uralic** *tälwä 'winter' > Finnish talvi, Estonian talv ⋮ proto-Lappish *tālvē > Norwegian Lapp dalꞌve ⋮ Erzya-Mordvin теле t́eĺe, Moksha-Mordvin тяла t́ala ⋮ Highland Cheremis tel, Eastern Cheremis telə ⋮ Ziryene tзv, Yazvian tôl 'winter' ⁞ Ob-Ugric *tĒl(əɣ) 'winter' > Southern Vogul tāl 'winter', Eastern Vogul tōl id., tēli 'in

winter'; proto-Ostyak *tĕ̄ləɣ 'winter' > Vakh Ostyak tĕ̄ləɣ ¦ Hungarian tél id. || ? **Altaic:** Turkic *tolu 'hail' > Turkish dolu, etc.

These two Nostr. words suggest Southwestern Asia as a homeland. Indeed, saline earth is very typical in Southwestern Asia, but not in Southern Europe. The equation 'winter' = 'rain' is more natural in the Near East (where rain is in winter only, and winter is characterized by rain) than in Southern Europe.

The Nostr. vocabulary shows that the speakers of the Nostr. parent language were by no means a maritime people. We find no words for boats or navigating. There is even no real word for the sea. Of course, there is a word *yam∇, which apparently means 'sea' in Semitic and some Samoyedic languages. But what kind of a 'sea' is this? The Hebrew word ם‎ָ‎י yām is usually translated as 'sea', but is applied not only to the Mediterranean, but also to the 'sea' of Galilee and to the Dead Sea (Hebrew yam ham'mɛlaħ 'Salty Sea'), which from the modern point of view are lakes. In the Samoyedic languages the word denoted a large river (the Ob), and only in the languages and dialects of those who reached the Arctic ocean (namely Nganasan and Tundra Nenets) the word denotes the sea. Those who in the remote past were not maritime people did not distinguish the sea from other large water bodies.

[13] *yam∇ 'water body' ('sea, lake' > 'pond'), 'water' > **Hamito-Semitic:** Semitic *yamm- 'sea' (actually 'large water-body') > Hebrew ם‎ָ‎י yām (pl. ם‎י‎ִ‎מ‎ָ‎י yam'm-īm) 'sea', Phoenician, Ugaritic ym, Aramaic, Syriac yam'm-ā, Arabic yamm- 'sea'; Semitic > Egyptian (from the 18th Dynasty) ym 'sea' ||| ?? Berber *-ʔam- 'water' (with the masc. article *ʔa- and the pl. ending *-ān: *ʔa-ʔam-ān > *ām-an pl. 'water') > Twareg ām-an, Kabyle aman, etc. ||| Chadic *ˌH∇ˌy∇m- 'water' > Tera ʔyim, Ga'anda yèma, Chibak yìmi, Higi yiemi, etc. || **Uralic:** Samoyedic *yäm 'large water body (sea, large river)' > Nganasan 'дзьяма 'ʒama 'sea', Tundra Nenets jam̃ʔ 'sea, large river', Forest Nenets yĕå:m 'large river'.

The words for 'sea' in the descendant languages go back to Nostr. words for 'water body'. The IE word *mori 'sea' is from Nostr. *moRE 'water body'. In Egyptian the same root means 'pool', and the speakers of Megrelian (a Kartvelian language, very near to the Black Sea) use this word for 'lake'.

[14] *moRE 'water body' > **Indo-Eur.** *mor-, *mori / *mₒri 'sea' > Latin mare 'sea' ¦¦ Celtic *mori- 'sea' > Old Irish muir (gen. morə), Welsh

mor ⁝ Germanic: Gothic marei, Old High German marī, Old Norse mar-r (gen, mar-ar) 'sea, lake' ⁝⁝ Prussian mary, Latvian mare 'the Curonian Lagoon (Kurisches Haff)', Lithuanian pl. mãrės (gen. mãrios) id., 'sea'; Baltic -ᗒ Finnish, Estonian meri 'sea' ⁞ Slavic *moře 'sea' > Old Church Slavonic морѥ morje, Bulgarian мо'pe, Serbo-Croatian mȍre, Czech moře, Slovak more, Polish morze, Russian 'море || **Ham.–Sem.:** Egyptian mr 'pool, channel', Demotic Egyptian mr 'haven, land on the seashore', mry.t 'haven' ||| Central Chadic: Nzangi mirɩn 'river' || **Kartv.** *°mo|a|er- > Zan *mo|ar-ey > Megrelian mere 'lake' || **Altaic:** Mongolic *mören 'large river, lake, sea' > Middle Mongolian mören 'large river, stream of water', gen. mörenü 'of the sea, of a large river', Class. Mong. mören, Halha мэрэн 'large river or lake', Kalmuck mörən 'river (falling into a sea)', Ordos mörön, Monguor murōn, Dagur mùr(ù) 'river'.

Ancient speakers of the Nostratic parent language did not know geography and had no maps, they were not a maritime people, therefore they did not distinguish between the sea and other relatively large water bodies. This is also an argument for their localization in Southwestern Asia rather than in peninsular Southern Europe (where an intimate acquaintance with the sea was inevitable).

All this favours the hypothesis of Southwestern Asia (rather than Southern Europe) as the original Nostratic territory.

3.2. When?

By saying 'When?' we do not mean astronomical time (millennia), but rather cultural time (the Neolithic, Mesolithic or Palaeolithic epochs).

3.2.1. Neolithic? Agriculture, husbandry, pottery?

In contrast to the Proto-Indo-European vocabulary, very rich in terms of agriculture, husbandry and pottery (hence pointing to a Neolithic dating of the Indo-European parent language), the Nostratic vocabulary (as reflected in the extant two thousand etymological entries) has no words that can be unequivocally connected with Neolithic culture.

It has no words for sowing or ploughing, but has words for harvesting (in defiance of the famous maxim).

[15] ***qaRp‖p̱∇** 'to harvest' ('cereal') > **Hamito-Semitic**: Semitic *√χrp 'to pluck, harvest' > Arabic خرف √χrf 'to pluck and gather (fruit)'; Semitic *'χurup-, *χarp- 'autumn and winter' (← *'harvest-time') > Old South Arabian χrf 'autumn, autumn crops', Akkadian χarpū 'early autumn', Biblical Hebrew חֹרֶף ḥōraρ 'winter', Arabic خرف χuruf- 'tempus quo ad autumnum exeunt', χarīf- 'autumn' ‖ **Indo-European** *χa‖orP- > Hittite harpas, harpiyas 'feast of harvest' ('Erntefeste') ‖ **Altaic**: Turkic *arpa 'barley' > Old Turkic arpa, Turkish arpa, etc. ‖‖ Mongolic *arbay 'barley' > Middle Mongolian, Classical Mong. arbay, Halha arvay id. ‖‖ Manchu arfa 'oats, barley'.

[16] ***ʒük∇** or ***ʒukE** 'edible cereals, harvest (of wild plants?)' > **Hamito-Semitic**: Semitic *°√zkw > Arabic √zkw 'to grow' (of a plant) ‖‖ ? Egyptian sk3 'to plough, cultivate a field', sk3 (noun) 'harvest of a field' ‖ **Uralic**: Finno-Ugric *sükś∇ 'autumn' > Finnish syksy, syys id., Estonian sügis, sügise- ¦ proto-Lappish *ćзkćз id. > Norwegian Lapp čâk'čâ ¦ Erzya-Mordvin сёксь śokś, Moksha-Mordvin сёксе śokśä̆, 'autumn' ¦ Lowland Cheremis 'шыже šьže, Highland Cheremis шы̌жы̌ šaža id.¦ Votyak сизьыл siźƚl id. ‖ Ob-Ugric *θũɤas id. > Southern Vogul tüks, Vakh Ostyak sõɣəs id. ¦ Hungarian ősz id.

Nostratic had words for cereals (*gaL∇, *χänṭ∇, etc):

[17] ***gaL∇** 'cereals' > **Hamito-Semitic**: Semitic: Arabic ɣall-at- 'cereals' ‖ **Kartvelian**: Georgian ɣalva 'zu mähendes reifes Korn', possibly also ɣala 'reicher Ertrag des Feldes' ‖ **Indo-European** *χel̠∇ˌK- > Hittite halki- 'grain, corn, grain-crop' ‖‖ Greek ἅλιξ 'spelt' ɹ> Latin (h)alica id.

[18] ***χänṭ∇** 'kernel, grain' > **Hamito-Semitic**: Semitic *ḥinṭ-at- (~ *ḥunṭ-at-?) 'wheat' > Hebrew ḥiṭ'ṭā, Ugaritic ḥṭṭ, Old Aramaic ḥṭḥ, Imperial Aramaic ḥnṭʔ ~ ḥṭḥ, Jewish Aramaic ḥinṭa'ṭā ~ ḥiṭṭa'ṭā, Syriac ḥeṭṭaṭā, Arabic حنطة ḥinṭat-, Akkadian uṭṭatu 'wheat' ‖‖ Cushitic: Somali hádūḏ 'corn, millet', Iraqw, Gorowa ʕayiti?i (pl. ʕayito?o) 'maize' ‖ **Indo-European** *χͣet(e)n- (metathesis from Nostr. *χänṭ∇) >

Hittite ḫattar '(a kind of) cereal' ||| Narrow Indo-European *et(e)n-'kernel, grain' > Middle Irish eitne 'kernel', Scottish Gaelic eite 'unhusked ear of corn', eitean 'kernel, grain' || Greek ἔτνος 'a thick soup of pulse, pea-soup' || **Dravidian** *aṅṭi 'kernel' > Malayalam aṇṭi 'kernel, stone of mango, etc., nut', Tamil aṇṭi-kkoṭṭai 'cashew-nut', Kodagu ma·ṇge a·ṅḍi 'mango stone'.

Unfortunately, the words for cereals do not help us to understand if those cereals were wild or domesticated. Therefore our conclusion about the lack of agriculture is based on a negative argument only: no words for specifically agricultural activities (sowing, ploughing, harrowing, etc.).

We face a similar difficulty in trying to find out whether the speakers of Nostratic were acquainted with husbandry. The words for bovines, sheep, goat and swine are not helpful because they might have denoted both wild and domesticated animals. But there is a more sophisticated way of solving the problem: the criterion of milk as food. Milk as food exists only in societies with husbandry. But in Nostratic we know of no word for milk as food or for milking a female animal. The words of the descendant languages for 'milk' and 'milking' go back to words with a different meaning. For instance, the Indo-European verb *melĝ- 'to milk' (whence English milk) goes back to Nostr. *mälge 'breast, female breast'. The Hamito-Semitic root for 'milk, to milk' (Hebrew ḥaˈlaḇ, Arabic ḥalab- 'milk', the South Cushitic word for 'milk') go back to Nostr. *ḥalb∇ 'white'. Finnish maito 'milk' is traced back to the Nostr. word for 'tasty beverage'.

[19] ***mälge** 'breast, female breast' > **Indo–Eur.** *melĝ- 'to milk' > Greek ἀμέλγω 'I milk' || Albanian mjel, miel id. || Latin mulgē-re 'to milk' || Middle Irish bligim 'I milk', perfect do-om-malg || Old High German melchan, German melken, Anglo-Saxon melcan 'to milk'; noun: Gothic miluks, Old North mjǫlk, Old High German miluh > German Milch, Anglo-Saxon meolc, mioluc > English milk; Germanic ↬ Slavic *melko 'milk' > Old Church Slavonic mlěko, Polish mleko, Russian моло'ко 'milk' || Lithuanian mélžu / mìlžti 'to milk' | Slavic: Russian Church Slavonic mъlzu / mlěšti 'to milk'; Slavic *melzivo 'colostrum' > Russian мо'лозиво, Slovak mlězivo, etc. || Tocharian: A mālklune 'milking' (nomen actionis), A malke, B malk-wer 'milk' || **Ham.-Sem.:** Semitic *√mlg > Arabic ملج √mlǧ 'to suck' ||| Egyptian mnз 'female

breast, breast' ||| Cushitic: Somali mā1- 'to milk' || **Uralic:** Finno-Ugric *mälʁe 'breast' > Finnish mälvi, Estonian mälʋ 'breast of a bird\fowl' ¦ Norwegian Lappish mielʲgâ 'breast\chest of an animal' ¦ Moksha-Mordvin mä⅃kä 'breast' ¦ Highland Cheremis mel id. ¦ Votyak mɘl id. || Ob-Ugric *mɛɣəl 'breast' > proto-Vogul *māʁəl > Konda Vogul mȷʁl, måʁl; Vakh Ostyak möɣəl, Teryugan Ostyak mǎɣ゚ə⅃ id. ¦ Hungarian mell 'chest, breast, bosom' ||| Tundra Yukagir meɫut 'breast'.

[20] ***ħalb∇** (or ***χalb∇**) 'white' > **Ham.-Sem.:** Sem. *ħaˈlab- 'milk' > Biblical Hebrew חָלָב ħāˈlāḇ id., Middle Hebrew חָלָב ħāˈlāḇ id., 'white (of an egg)', Punic, Ugaritic, Official Aramaic ħlb, Aramaic, Syriac ħal(ə)ˈḇ-ā, Arabic حَلَب ħalab- 'milk', Ge'ez ħalab 'sour milk'; derivatives: Arabic ħalīb- 'milk', Ge'ez ħalīb, Tigre, Tigray ħalib 'milk, curds', Sem. *√ħlb 'to milk' > Middle Hebrew, Aram., Syriac, Arabic √ħlb id.; West Sem. ↳ New Assyrian Akkadian χilpu 'milk' ||| South Cush.: Iraqw îlwa, ʔilwā~ʔulwā, Burunge, Alagwa ilba, Gorowa ulûwa, Asa liba 'milk' ¦¦ East Cush.: Somali ħalab-lä 'Melchsechter' (with the component lä ʿhaving') ¶¶ The Sem. words *ħaˈlab- and *ħaˈlīb- have a morphological structure typical of adjectives (the patterns *CaˈCaC- and *CaˈCīC-). This fact suggests an original meaning of adjective (most probably 'white') || **Indo-Eur.** *ˈħⁱaǀeⁱlbʰo- 'white' > Narrow Indo-Eur. *albʰo- id. > Latin albus, Umbrian alf- id. ¦¦ Gaulish albo- id. ¦¦ Greek [Hesychius] acc. pl. ἀλφούς id., ἀλφός 'whiteness, white leprosy' ¦¦ Germanic *alβ-it, *alβ-ut- 'swan' > Old High German albiz, elbiz, Anglo-Saxon ælbitu, ielfetu, Old Norse elptr, ǫlpt ¦¦ Slavic *ŏ́lbǫdь ~ *ĕ́lbedь 'swan' > Church Slavonic лєБєдь lebedь, Bulgarian лебед, Serbo-Croatian làbūd, Russian 'лебедь, (dial.) 'лебядь, Polish łabędź, Czech labut' ||| ? Hittite alpas 'cloud' || **Drav.** *all- 'clear' (of liquids) > Kurukh all-nā 'to become clear' (of liquids left undisturbed), Malto ále id. ◇ If Hittite alpas belongs here, the reconstruction is *ħalb∇, otherwise it is *ħǀχalb∇.

[21] ***mayŝ∇** 'tasty beverage' > **Uralic:** Finno-Ugric *mayẑ∇ 'sap of trees' > Finnish maito 'milk', Finnish (dial.) maȷto 'birch sap', Estonian (dial.) maȷt 'cream (Sahne)' ¦ Votyak (dial.) mɘí 'tree honey, tree sap' ||

Altaic: Turkic *bal 'honey' > Old Turkic bal, etc.‖ **Kartvelian** *mẑ∇ > Laz mža 'milk, buttermilk' ‖ **Hamito-Semitic:** East Cushitic: Sidamo mal(ʔ)- 'sweet', Saho, Eastern Afar malāb, Somali malab, Hadiya marabō, Sidamo malawō 'honey' ‖ **Indo-European** *mel-i-⟨t⟩ / *mel-n- 'honey' > Armenian mełr ⫴ Greek μέλι (gen. μέλιτ-ος) ⫴ Albanian mjal, mjaltë (< melit-) ⫴ Latin mel, gen. mell-is (< *mel-n-) ⫴ Old Irish mil (< *meli), gen. mela ⫴ Gothic miliþ id. ‖‖ Hittite milit- 'honey'.

Through the looking-glass of the vocabulary we can see that the speakers of the Nostratic parent language were hunters and gatherers without agriculture and husbandry.

Did they know pottery? There are many Nostratic words that in the descendant languages are names of vessels. But what is conspicuous is that practically all of them denote baskets too. When used as verbs, they mean 'to plait, wattle, wicker'. In addition, many of them are used to denote walls and fences (< 'wickerwork'). These words reflect the epoch of plaiting vessels, which only later developed into earthenware.

[22] *ḳad∇ 'to wicker, wattle' ('wall', 'building') > **Kartvelian** *ḳed-/*ḳd- 'to build' > Laz ḳid-, ḳod- 'to build', Georgian ḳed- 'corner-stone', Megrelian ḳid- 'to partition off with a wall'; Kartv. *ḳedḷ/*ḳdel- 'wall' > Georgian ḳed-el-, Laz ḳida, ḳoda, Megrelian ḳida(la), ḳɜda(la) ~ ḳɜdela 'wall', Lashkhi Svan čʷed, čʷäd (pl. čʷädw-är) id.‖ **Ham.-Sem.:** Semitic [1] (with a deglottalized *k-) *kadd- 'jar, vessel for liquid' > Hebrew כַּד kaḏ (pl. כַּדִּים kad'd-īm), Ugaritic kaddu 'jar', Phoenician kd [*kad⟨d⟩] 'pitcher, jar' (↦ Greek κάδ⟨δ⟩ος 'jar, vessel for water\wine' ↦ Latin cādus 'jar' and probably Megrelian ḳoṭo 'pot'), Jewish Aramaic כַּדָּא kad'd-ā 'jar', כַּדְנָא kad'n-ā 'jug', Syriac kaddā'n-ā 'small narrow-necked jug', Arabic kadd- 'mortar'; [2] *ḳ∇d∇r- 'earthen pot' > Middle Hebrew קְדֵרָה ḳā'dēr, קְדֵרָה ḳəḏē'rā, Jewish Aramaic קְדֵרָא ḳəḏē'r-ā ~ קְדֵרָא ḳiḏ'r-ā, Syriac ܩܶܕܪܳܐ ḳɛḏ'r-ā '(earthen) pot', Arabic qidr- 'chaudron; marmit en cuivre', qadar-at- 'petit flacon', Mehri ḳāḏər 'pot' ‖‖ Egyptian ḳd 'to make earthenware, to build, to shape, to create', ḳd 'pot' ‖‖ Omotic: Zayse ḳeče 'Zaun des Geheges', Shinasha kaçḉà id., 'Gehege für Rindvieh' ‖‖ West Chadic: Bole-Tangale: Bole kuḍa 'pot', Kirfi kʷàtì 'cooking pot' ⫴ East Chadic: Dangla kɔ́ḍà 'a kind of small jar' ‖ **Indo-Eur.** *kat- 'wickerwork, wattle-fence' >

Church Slavonic коtьсь 'cage', Macedonian Slavic коtec, Bulgarian 'косе 'fishweir', Serbo-Croatian kòtac id., 'partition in a shed', Old Polish kociec 'enclosure for livestock\fowl', Russian (dial.) ко'tец 'fish-trap (made of cane\brushwood), коt'цы 'fishweir, fishing net', Ukrainian ко'tець 'round fishweir'; Slavic *коtь, *коt-ьсь 'small building' (> Old Czech коt, kót 'stall, shop [in the market]', Church Slavonic коtьсь 'small room', etc.) represents a contamination of the root in question and Nostr. *Ḳot|ta 'fence, wall, hut, house' ‖ Anglo-Saxon heden 'cooking vessels' ‖ Latin catīnus 'dip dish\bowl' ¶ IE *-t- instead of the phonetically regular *-dʰ- is due to the incompatibility law ruling out combinations of tenues and mediae aspiratae; in some cases contamination with *Ḳot|ta 'mud-hut, house' may have played a role as well ‖ ? **Altaic:** Turkic *kat- 'to weave, plait, twist (wool into thread)' (shift of fortis < **k'at-?) > Tofalar qat'- 'to weave, plait', Tuva qat- 'to add, weave, twist' ‖ **Dravidian** [1] *kaṭṭ-, *kaṭ- 'to tie, build' > Tamil, Telugu kaṭṭu, Malayalam keṭṭuka, Kota, Kolami, Gadba kaṭ-, Toda koṭ-, Kodagu kəṭṭ-, Tulu kaṭṭuni, Naikri, Parji kaṭṭ-, Chanda Naiki kaṭ-/kaṭṭ- id., Kannada kaṭṭu 'to bind, tie, dam', Gondi kaṭṭā 'a dam in the river for catching fish', Konda kaṭa 'bundle (of hay)', Kui kāṭ- 'to fix, fasten', Malto gaṭa 'rope, cord'; [2] (derived from the prec.?) *kaṭṭī or *kattī 'mat, mat-wall' > Gondi kaṭṭī 'palmleaf mat', katti(:) ᵈ ketti 'mat', Konda kati 'wall', Kuwi katti 'mat-wall' ᵈ kati 'wall'.

[23] *ḳoʔč|cᴖ 'basket' > **Ham.–Sem.:** Semitic *'kaʔas- 'vessel' > Bibl. Hebrew כּוֹס kōs, Samaritan Hebrew kuwwås, Ugaritic, Phoenician, Official Aramaic, Hatra ks, Phoenician ḳs (ḳ < *k...?), Jewish Aramaic כָּסָא kā'sā, Syriac ܟܣ kās / ܟܣܐ kā's-ā, Mandaic kasa 'drinking-bowl, cup', Arabic كأس kaʔs- '[wine-]cup', Akkadian kāsu 'drinking-bowl'||| Egyptian kc 'jug of metal', Late Egyptian k3 'vessel of silver' ||| Berber *k'ū'ss- 'pot, drinking vessel' > Twareg, Ghat akus (pl. ikassən), Ghadamsi twkas (pl. təkassən) 'pot, drinking vessel' ||| Central Cushitic: Khamir kŭskŭsā (pl. kŭskūs) 'Wasserkrug'; Agaw ↦ Ethiosemitic: Ge'ez kʷaskʷas 'pitcher, pot', Tigray kʷaskʷasti 'phial of glass or metal', Amharic kʷaskʷast 'water jug' ‖ **Kartvelian:** [1] Georgian ḳvaçia 'small

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earthen pot'; [2] Kartvelian *ķec- 'earthen vessel' > Georgian ķeci, Megrelian ķici ꝯ ķeci 'tönerne Backpfannen', Laz ķic- 'pan of stone', Svan ķec 'grand pot (creusé dans la terre)' ‖ **Indo-European** *kʷas-yo-, *kʷas-lo- 'wicker basket, wickerwork', *kʷēsyā 'vessel': [1] *kʷas-yo-, *kʷas-lo- 'wicker basket' > Latin quālum (quallus) id. (< *kʷaslom, as can be seen from the deminutive quāsillus, -um) ‖ Slavic *košь (<*kʷasyos) 'basket' > Old Church Slavonic, Old Russian кошь košь, Bulgarian, Russian (dial.) кош, Serbo-Croatian kȍš, Slovene kòš, Czech koš, Slovak kôš, Polish kosz, Ukrainian кiш 'basket', proto-Slavic *košelь, *košela, *košelь 'wickerwork' > Low Lusatian kóśela 'wattle-fence', Polish koszela, Old Russian košelь 'wicker basket', Russian ко'шель id., 'small sack' ‖‖‖‖ [2] IE *kʷēsiā 'vessel' > proto-Slavic *čaša 'cup' > Old Church Slavonic, Old Russian čaša, Russian 'чаша 'cup, bowl', Bulgarian 'чаша 'a glass', Serbo-Croatian čàša 'bowl', Slovene čáša 'cup, a glass', Polish czasza, Old Czech čieše, Czech číše 'bowl' ¦ Prussian kiosi 'Becher, Krug' ¦¦ Old Indian 'caṣakaḥ 'drinking-cup'‖ **Uralic**: Finno-Ugric *koća 'basket (made of birch bark), vessel' > Finnish (dial.) kosio, kalakosio 'großer Fischkorb aus Birkenrinde' (kala 'fish'), Aunis Karelian koiza, kozįa 'kleiner Rindenkorb mit Henkel aus Birkenrinde' ¦ Norwegian Lapp guösše 'Rindenkorb', Kola Lapp kiˀšš˙e ~ kūšš˙ ~ kuȏšš˙ 'Tragekorb aus Birkenrinde' ¦ Moksha-Mordvin kuću, koću 'spoon' ¦¦ Ob-Ugric *kŏć- > Northern and Eastern Vogul sān-χos', Konda Vogul sānχŏs 'small basket of birch bark' (sān 'a vessel of birch bark'); Teryugan Ostyak kŏťi, kŏťak 'Trinkgefäß aus Birkenrinde', Vasyugan Ostyak kŏćak 'Rindenschachtel von der Form einer Schöpfkelle, die in die Wiege gestellt wird' ‖ **Altaic**: Tungusic *χaɽu-χan 'kettle, basket' > Orochi χačuan, Ulcha χačoa(n-), Orok χaɽuɣa(n-), Nanay χačoχã 'kettle', Kur-Urmi Nanay χačoχoã ~ χačã id., 'basket of birch bark', Classical Manchu χacuχan mucen 'three-legged kettle' ‖ **Dravidian** *kuᵓᴄ-a- (+ suffix) 'potter' > Tamil kuyam (/kucam- as the first member of compound words) 'potter caste', kuyavaṉ ~ kucavaṉ 'potter', Malayalam kuyavan ~ kuśavan id., Tamil f. kuyatti ~ kucatti, Malayalam f. kuyatti 'potter (woman)', Tamil kō 'potter', Kannada kōva, kuvara, Tulu kisave id.

[24] *p̣|pat'a' 'basket, box' > **Hamito-Semitic**: Semitic *°√ptn (?*pa'tan-) > Akkadian pitnu 'box' || **Indo-European** *pod- > Narrow IE *pod- 'box, vessel, pot' > ? Old Indian palla 'container for corn' ⋮ Old High German vazz 'box, container', Old Saxon, Old Norse fat 'vessel', Anglo-Saxon fæt 'vessel, cup, pot' ⋮ Lithuanian púodas, Latvian pôds 'pot' ||| Hittite pattar/n-, paddur 'basket', Lycian πατάρα 'basket, box' || **Uralic**: Finno-Ugric *pata 'cauldron, pot' > Finnish pata (gen. padan), Estonian pada 'kettle, cooking-pot' ⋮ Norw. Lapp batte / -d- 'pot, cauldron' ⋮ Highland Cheremis pat, East. Cheremis pat, pot 'pot' ⋮ Ob-Ugric *put 'cauldron' > Vogul pōt, pūt, put, Ostyak: put, püt, pūt ⋮ Hungarian fazék 'cooking-pot' || **Dravidian** *patal∇ 'pot' > Tamil patalai 'large-mouthed pot', Toda paθş 'large, broad-mouthed clay pot', Gonda, Malto patli 'cooking-pot'.

As we can see, according to the lexical data, the speakers of the Nostratic languages had no agriculture, no husbandry, no pottery. Hence, they did not belong to the Neolithic epoch.

3.2.1. Mesolithic? Bow, arrows, fishing net?
Shall we refer the Nostratic parent language to the Mesolithic or a still earlier epoch? It must be confessed that I do not know the answer. But let us try to look for information in the language.

From popular literature on archæology (e.g. *Encyclopædia Britannica* XV [1971], 202) I have understood that *bow* and *arrows* are a Mesolithic achievement. They say also that in Mesolithic times the *fishing net* was invented. I do not know if this is true. If not, I shall appreciate correction. In any case, we may try to apply the criteria of bow, arrows and fishing net and see whether the Nostratic language existed after or before the invention of these artefacts.

In Nostratic there are three words that mean 'bow' in descendant languages. But in analyzing them we find that two of them (*ʕ|ɣaŕ Ḳ'u' and *yaŋ̣ỵ∇) have also the meaning of 'sinew'. The semantic prehistory is 'sinew' > 'string' > 'bow-string' > 'shooting bow'. In the third word (*ḷoŋ Ḳa) the meaning 'shooting bow' goes back to the verbal idea of 'bending' (just as in the English word bow).

[25] **ʕ|γaŕ*K̗ʳuʾ** 'sinew' > **Ham.-Sem.**: Sem.: Arabic ʕirq- 'root, sinew' ||
Indo-European *нe|arku- > *arku- 'bow; net' > Latin arcus id. ‖ Germanic
*arhʷō > Gothic arʍazna (a derived word), Old Norse qr (gen. qrvar),
Anglo-Saxon earh 'arrow', English arrow ‖ Greek ἄρκυς, -υος 'net' ||
Altaic: Turkic *arka- > Osman arqa- 'an den Sattelriemen festbinden',
Chaghatay arqa- 'den Faden einschließen', Tuva arγɨ- 'to knit, plait, weave',
Khakas arγa- 'to embroider in satin-stitch'; Turkic *arkān 'lasso, thick
rope' > Chaghatay, Karaite arqan, Türkmen arqān 'lasso, thick rope',
Qarachay-Balqar, Volga Tatar arqan, Uzbek arqɑn, Turkish argan 'thick
rope, cable', Qïrghïz, Altay arqan 'rope made of hair', Crimea Tatar,
Karaite, Bashqurt arqan 'thick rope, cable', Qazaq arqan 'thick rope, rope of
horse hair'; Turkic ⊅→ Russian apˈκaн 'lasso' ¶ Nostr. *ŕ > Turkic *r in
the preconsonantic position (Helimski's law) ||| Mongolic: Class. Mong.
argamʒi, Halha-Mong. аргамж, Buryat аргамжа, Kalmuck арhмж
'rope, tether', Class. Oirat arγamʒi 'rope, line, halter, hawser, bridle',
Class. Mong. argamʒi-, Halha аргамжи-(x) 'to tie, fasten with a rope',
Class. Oirat arχala- 'to fasten, tether'; Mongolian ⊅→ Tofalar argamźi,
Tuva аргамчы 'lasso, leather rope', Khakas arγamžɨ, Altay армакчы
'lasso, rope', Qïrghïz аргамжы 'rope (made of hair)' || **Drav.** *eŕ∇t- >
Kurukh eŕetʰ 'long-bow', Malto eŕtu 'a bow', eŕtyo 'archer'.

[26] **＊yaŋˌyˌ∇** 'sinew, tendon'ˌ'bow (weapon)' > **Ham.-Sem.**: Egyptian
iʍn.t 'a kind of bow (weapon)' || **Uralic**: there are two derived words: **1.**
*yäntä 'sinew, tendon' > Finnish jänne (gen. jänteen) 'tendon, sinew,
cord' ‖ Skolt Lapp (Notozero) yėädd͟ā̱-pesˈsā̱ 'loaded gun' (pesˈsā̱ is 'gun') ‖
Highland Cheremis yəδän, Eastern Cheremis yьδaŋ 'bow-string', Lowland
Cheremis йыдан yaˈδaп 'шерстобойная струна' ‖ Ob-Ugric *yE:ntaɤ
'bow-string' > Vogul *yāntaɤ > Konda Vogul yantəŋ ⏴ yōntəŋ, Sosva Vogul
yäntew; proto-Ostyak *yŏntaγ > Vakh Ostyak yŏntaγ, etc. ‖ Old Hungarian
ideg 'sinew, bow-string', Hungarian ideg 'nerve' ||| Samoyedic *yentъ
'bow-string' > Tundra Nenets eн, Obdorsk dial. yēn, Forest Nenets yien,
Nganasan yenti, Somatu Enets yēddi, Taz Sölqup čiˈntɨ, Tïm Sölqup
č̣ȷ̌n·d, Kamassian nenž̌ id. |||| **2.** *yoŋse ~ *yoŋkse 'bow (weapon)' > Finnish
jousi, joutsi 'bow' ‖ proto-Lapp *yōksɜ 'bow' > Southern Lapp juokse,

Lule-Lapp juoksa, Kola (Kildin) Lapp jūꭓ:s ⁝ proto-Mordvin *yoŋgaks 'bow' > Erzya & Moksha Mordvin yoŋks id., (dial.) yons 'ручная шерсточесалка, лучок' ⁝ proto-Cheremis yoŋaž 'bow (weapon)' > Highland Cheremis yaŋꭁež, Eastern Cheremis yoŋež ᴧ yoŋũž ‖ Ob-Ugric *yŏꭁaθ 'bow' > proto-Vogul *yăꭁət > Pelïmka Vogul yäꭁt, Low Lozva Vogul yeꭁt; proto-Ostyak *yoɣaɬ > Vakh Ostyak yoɣəl id., etc. ||| Samoyedic *ɨntъ 'bow (weapon)' > Tundra & Forest Nenets ŋɨnˑ, Nganasan d́intə, En eddo id., Taz Sölqup ɨntɨ id., üntɨ 'arc', qōn üntɨ 'rainbow', Chaya Sölqup ynd́e 'bow', Kamassian īnə, i̯īnə id. ‖ A: Turkic *jāń 'bow' (> *jāy ~ *jā) > Bashqurt jan, Shor nan, Old Turkic jā, Türkmen jāy, Turkish yay, Azeri, Gagauz, Karaite, Nogay jay, Uzbek jɑy, Qazaq žay, Qïrghïz žā, Altay jā, Yakut sā id., Chuvash śu in uk-śu 'шерстобитный лук' ◇ Ural. *-tä and *-ˌkˌse probably go back to suffixes of derivation. The vowel *ä in the first syllable of Ural. *yänte is due to assimilation (vowel harmony). The labialization of the first vowel in *yoŋ(k)se is obscure.

[27] *loŋḲa 'to bend' > **Hamito-Semitic**: Chadic: West Chadic: Hausa lánk̲wà-sā́ v. tr. 'bend' ||| Egyptian rwꭓ 'bow-string; Sehne, Flechse des Körpers; Sandalenriemen, Band am Türverschluß' || **Indo-European**: NaIE *lenk- 'to bend', *lonko-s 'bow' > Baltic: (*lenk- >) Lithuanian lenkiù (inf. leñkti) 'to bend, crook, curve; bow'; (*lonko-s >) Lithuanian lankas 'shaft-bow; hoop', Latvian lùoks 'Krummholz, Radfelge', Prussian lonki 'Steg'; Lithuanian linkiù (inf. linkéti) 'sich neigen zu, wünschen', Latvian lìkt v. intr. 'bend', liks 'crooked'; Prussian lunkis 'corner' ⁝ (IE *lenk- >) Slavic *lęk- 'to bend' > Church Slavonic ЛѦКѫ lęk-ǫ / ЛѦЩИ lęšti 'to bend', Russian (dial.) 'лякий 'crooked, curve'; (IE *lonko-s >) Slavic *lǫkъ 'bow' > Old Church Slavonic ЛѪКЪ lǫkъ, Russian лук, etc. ‖ Germanic *laŋha- > Anglo-Saxon *lōha|e [pl. lō(a)n 'in sceaft-lō(a)n 'shaft-straps (to help in throwing spear)'; scéaft means 'shaft of spear\arrow'], Old Norse lengja 'strap (Riemen, Streifen)', Danish længe 'Seilstrippe' || **Uralic** * lˈäˈnka- (~ *lUŋka-) 'dull arrow' > Pelïmka Vogul laꭓ (pl. laŋkət) id.; Teryugan Ostyak lå̃ŋk, Demyanka Ostyak lĕŋk id. ||| Samoyedic: Tundra Nenets локы ᴧ лукы 'dull arrow (Klumppfeil)', Forest Nenets łuʰk·ɨ̵ 'arrow', Bay Enets loku 'round-pointed arrow, Klumppfeil'

||| Tundra & Kolïma Yukagir ɫokiɫ 'arrow' || **Ꭺ**: Tungusic *luŋkE- 'to bow' > Ewenki luŋkin- 'to bow the head', Lamut nöŋkə- id., 'to bow down'.

It is clear that 'bow' is not the most ancient meaning of these roots. The problems is only *when* these semantic changes ('sinew' > 'bow, to bend' > 'a shooting bow') took place. If these semantic changes occured still in proto-Nostratic, then that language (at least, Late proto-Nostratic) existed during the appearance of shooting bows. But if the changes belong to the separate history of the daughter languages (which cannot be ruled out), the Nostratic parent language existed before the invention of shooting bows. In other words, linguistic palaeontology fails to give us a key for chronology.

A similar story is with words for 'arrow'. The Nostr. word *ńoɣ|ʕlE denotes arrows in Uralic and Altaic (Tungusic). But it also has the meaning of 'sinew', so that we may reconstruct the semantic history like that: 'sinew' > 'bow-string' > 'shooting bow' > 'arrow'. The Nostratic word *p|p̣ešqE (or *p|p̣eqšE) denotes arrows in Chadic and Finno-Ugric, but in Semitic it has the meaning of 'spear', so that the underlying semantic change is 'spear' > 'arrow'. Here again we face the problem of chronologizing the changes. We do not know if the semantic changes took place within the history of proto-Nostratic or later, in the separate history of the daughter languages.

[28] *ńoɣ|ʕlE (or *ńaɣ|ʕlE) 'sinew', 'to tie together' > **Hamito-Semitic:** Semitic: [1] *'naʕˏ∇ˏl- 'sinew', 'tie' (noun) > Arabic naʕl- 'nerf, boyau, morceau de cuir avec lequel on entoure l'arc au haut de la cambrure ou sur les côtés; chaussure, soulier, sabot', Biblical Hebrew נַעַל 'naʕal 'a sandal', Ugaritic nʕl 'shoe, sandal', Syriac naʕl-ā 'horse-shoe', Mandaic nala 'shoes, sandals', Mehri nəʕāl, Eastern Jibbali nʕal 'sandals', Soqotri 'naʕal 'footwear'; [2] *√nʕl 'to tie' > Bibl. Hebrew √nʕl 'to lock (a door by straps), close, tie sandals on one's foot', Ugaritic nʕl 'binden, schließen', Jewish Aramaic √nʕl 'to tie a shoe', Mandaic √nʔl 'to shoe a horse, bind up, tie', Arabic √nʕl 'to give shoes to smb.', Ge'ez (derived noun) naʕūlt 'widow whom the late husband's brother marries by levirate' (lit. 'a tied one [f.]')

|| **Uralic** *ńōle 'arrow' > Finnish nuoli 'arrow', Estonian nool 'arrow. bow' ¦ proto-Lappish *ńōlɜ 'arrow' > Norwegian Lapp njuollâ ¦ Erzya & Moksha Mordvin nal id. ¦ Cheremis nölö 'arrowhead made of bone' ¦ Permian *ńôl / *ńôlу- 'arrow' > Ziryene ńɜv / ńɜvу-, Votyak ńɜl ¦¦ proto-Ob-Ugric *ń̄l∇ 'arrow' > proto-Vogul *ń̄l∇ > Vogul ńēl, ńāl, ńɜl; proto-Ostyak *ńal >

Vakh Ostyak ńaḷ ¦ Hungarian nyíl ||| Samoyedic *ńзəy > Tundra Nenets -ˈńʲi in түни tūńˈņ̊i 'gun' (lit. 'fire arrow'), Chaya Sölqup -ńī̀ʹ in qʹēsʹəńī̀ʹ 'arrow for shooting at birds', Kamasiian ˈńȧ 'arrow, bullet' |||| another line of semantic changement: Finno-Ugric *ńoḷ∇ (or *ńaḷ∇) 'to tie together' > Hungarian nyaláb 'bundle' ¦ proto-Ostyak *ńula 'together' > Vakh Ostyak ńula || ? **Altaic:** Tungusic *°ńuᶜˌˌḷge (or *yuᶜˌˌlge) > Ewenki ńulga ~ julga ~ yulga 'arrow, iron arrowhead'.

[29] *p|ꬰešqE ~ *p|ꬰeqšE 'spear' > **Ham.–Sem.:** Sem. *p∇š|θχ- > Akkadian pašχu 'hunting spear' ('ein Jagdspieß') ||| West Chadic *pasuq- 'arrow' > Karekare pasku, Pero púžŭk, Bole fɔsɔ, Jimi pussko 'arrow' || **Uralic:** *pekše 'arrow (with a dull arrowhead)' > Lowland Cheremis pikš 'arrow, bow', Highland Cheremis pikš 'arrow' ¦ Votyak pukɨč 'bow; arrow-fish' ¦¦ Ob-Ugric: Vakh Ostyak pŏɣ 'arrow with a dull wooden arrowhead, arrow for hunting squirrels without spoiling their skin' ¦ Lower Konda Vogul liʁənpāχtnəp-piwət 'Keil mit stumpfer Spitze für die Eichhörnchenjagd' (liʁən 'squirrel', pāχt- 'to shoot').

There is also a word (*ṭulˌiˌˈgˈ∇) that seems to mean 'fishing net'. It actually means 'fishing net, to cast a fishing net' in several descendant languages. But its most ancient meaning is 'veil, to spread like a veil/net'.

[30] *ṭulˌiˌˈgˈ∇ 'to spread like a veil/net, cover with a veil/net, catch with a net' > **Hamito–Semitic:** Semitic *°√ṭly|ʕ > Ge'ez ʔan-ṭolaʕa 'to spread, stretch, spread like a veil, veil, cover with a veil', Tigre ኣንጦልዐ ʔanṭolʕa 'to spread, stretch out' (Ge'ez, Tigre ⬌ Cushitic?) ||| Egyptian ꝫʕ 'to catch (fish)' or sim. (< *ʒuʔʕ∇ < *djuʔʕ∇ < *ṭulg∇) || **Kartvelian** *txewl- 'to fish by net' > Old Georgian txewl-, Georgian txevl- id., Svan txēl- 'to look for, hunt' || **Uralic:** Finno-Ugric *tulk∇ 'seine, drag-net' > Ziryene tɨl- ~ tɨv- id. ¦¦ Ob-Ugric *tŏləʁ ~ *tŏʁəl id. > proto-Vogul *tŏ̄ləɣ > Northern Vogul toliɣ, proto-Ostyak *tŏɣəl > Kazïm Ostyak tŏχəɬ || **Altaic** *tʹuˈlE- > Turkic *tˌʹˌuˈla- 'to hobble (a horse, etc.)' > Old Turkic tuša-, Qazaq түса- tūsa-, Qïrgïz tuša-, Tuva ťǔža-, Tofalar ťuša- id.; ⬄ Turkic *tˌʹˌuˈlāk 'hobble' > Old Turkic tušaɣ, Türkmen dušāq, Shamakhï Azeri tušaχ, Qazaq түсаɣ tūsaw, Tuva ťǔžaɤ, Tofalar ťušaɤ, Chuvash тăлă tъlъ id., Qïrgïz tušō id.,

'fetters', Yakut tuhax 'loop, snare, chain, fetters' ¶ Türkmen, Tuva and Tofalar data suggest Turkic *t̄-, while Azeri tušax suggests *tʻ- ||| Tungusic *tule- 'to cast (a fishing net), install (a self-shooting bow, a trap, a snare)' > Orochi, Ude, Ulcha, Orok, Nanay, Ewenki, Negidal tulɜ-, Lamut tul-, Manchu tule- id., Orok tulɜgdɜ 'fishing net', tulɜči- 'to fish with a net' || ? **Dravidian** *tul∇ 'weaver' > Parji tula id.

Thus, in the Nostratic vocabulary we do not find confirmation of the idea that proto-Nostratic was spoken by people having bows, arrows and fishing-nets. If bow, arrows and fishing-net are indeed Mesolithic achievements, there is no proof that the proto-Nostratic culture was Mesolithic.

4. Hunter-gatherers

4.1. Hunting

The life of hunters is reflected in some Nostratic lexemes: the hunter *follows the tracks* (*goki, *⌐dᵊEʕ|ɣ|χ5∇), casts a *spear* (*šubу∇, *p‖pešqE ~ *p‖peqšE [cf. above [29]]), tries to *hit the target* (*t̞ap∇) and not to *miss the aim* (*ment̞∇).

[31] ***goki** 'track' ('way'), 'to follow the track' > **Hamito–Semitic:** Cushitic *gʷ∇g‖k- > Agaw *gūk- > Bilin gūg- (pl. gūkək), Hamta gʷug 'way' ‖ Beja gīg- 'to go' ‖ East Cushitic: Hadiya gōgo 'road', Kambatta goggō 'way' ||| Omotic: Zayse ˈgoge 'road', Shako kōku, Maji kok, Ari gōgí 'road, path' (loans from East Cushitic?) ||| Chadic *√gk 'path' > West Chadic: Dera gókó, Bole gɔgɔ, Pero kɔ́kɔ̀ǯ 'road' || **Uralic** *koke 'to examine (a trap, snare), search' (→ 'find') > Finnish koke- 'to examine (a trap, snare), try' ¦ Skolt Lapp kuoʔkǎ- 'to examine (the fish net)' ||| Samoyedic *ko- 'to see, find' > Enets koabo ~ kuabo 'I look for, I find', Tundra Nenets хō-ś, Forest Nenets kō-ś 'to find', Taz Sölqup qo-qo 'to find, sea, discover', Mator коямъ 'I find' || **Altaic:** Turkic *Kog(∇)- 'to follow the track, hunt' > Old Turkic qov- 'to follow, pursue, chase', Middle Turkic [13th c.] qov- 'to hunt', Chaghatay qaw-, quɣ- 'to pursue, drive away', Tuba, Quu-Kizhi qoɣ- 'to pursue', Khakas χoɣ- 'to follow, pursue smbd.', Osman qoɣ- ~ qov- 'to pursue', Turkish kov-, Türkmen qov- 'to chase, pursue' ‖ Chuvash хъv- ~ хu- 'to chase, pursue, follow'.

[32] *ᵈEʕS∇ or *ᵈEɣ|χS∇ 'to follow the tracks' > **Ham.-Sem.:** ? Sem. *°√dʕš|s > Arabic daʕs- 'trace, track, beaten road' ||| Chadic: Ngizim tása v. 'find' || **Kartv.:** either [1] Kartv. *°ʒ|ʒ- > Georgian ʒi- (pres. ʒev-) 'search, look for', or [2] Kartv. *°ʒ|ʒɣ-/*°ʒ|ʒeχ- > Georgian ʒɣ(v)-/ʒeχ-: mi-ʒɣ(v)-/ʒeχ- 'etw. (z. B. Ideal) verfolgen', ga-ʒɣ(v)-/ʒeχ- 'let smbd. go first, follow smbd.' || **Indo-Eur.** *dēs-/(?) *des- v. 'find, to track (nachspüren)' > Greek δήω 'I shall find', Greek [Hesychius] ἔδηεν· εὗρεν '(he) found' ‖ Albanian ndesh 'antreffen', ndieh (< *des-skō) 'befinde mich' ‖ Old Church Slavonic дешѫ dešǫ / десити desiti v. 'find', Church Slavonic досити dositi, оудосити udositi 'to find, meet' (unless from *deḱ-) || **Altaic:** Mongolic *des > Class. Mong., Halha des 'following, next, subsequent, second', desle- v. 'be next, follow' ◇ If the Georgian cognate is ʒi-/ʒev-, the Nostr. etymon is *ᵈEʕS∇, while if it is ʒɣ(w)-/ʒeχ-, the Nostr. word is to be reconstructed as *ᵈEɣ|χS∇. The Arabic cognate is valid only of the verb √dʕs 'to tread upon' is derived from the noun and not vice versa.

[33] *šubɣ∇ 'spike, spear, to pierce' > **Hamito-Semitic:** Sem.: Arabic √sbb 'to pierce' || **Kartv.:** Georgian šub-i 'spear' || **Uralic:** Finno-Ugric *šuɣe (< **√šuwɣe) 'spear, bear-spear, spike (of a weapon)' > Finnish (dial.) hui, huitti 'spool; (round) tip, summit', Estonian hui 'netting-needle; spool (for weaving)' ¦ Swedish Lapp suoj 'instrumentum quo retia texuntur', Pite Lapp 'suoɣɣa̱ 'netting-needle' ¦ Permian *šů > Ziryene шы šɨ 'spear, bar-spear, bayonet', Votyak ши ši 'sting, spike, bayonet' || ? **Altaic:** Mongolic *soɣuga > Class. Mongolian soɣuga, Halha соёо 'eye-tooth, tusk, fang, horn needle, awl' ‖ Manchu suyfun 'awl'.

[34] *t̪ap∇ 'to hit (the target)' ('to succeed, find, find an answer, identify, recognize') > **Indo-Eur.** *top- 'wohin gelangen, auf etwas treffen; Ort, wo man hingelangt oder hin will' > Greek τόπος 'place', τοπάζω 'to aim at, guess' ‖ ? Anglo-Saxon ðafian 'to consent to, permit, tolerate' ‖ Lithuanian tāp-ti 'to become', Latvian tapt id., pa-tapt 'hingelangen, wozu kommen können' || **Ham.-Sem.:** Sem. *√t̪bb > Syriac √t̪bb (perfect t̪ab) 'to be informed, know, make inquiry', Arabic t̪abb- 'habile, savant,

versé dans une science; circonspect', √ṭbb: perfect (< adj. of state) ṭabba 'était habile, savant', Soqotri ṭeb 'he believed, knew', Ge'ez √ṭbb 'to be wise, prudent, sage' and Sabaic (derived verb) ṭbb 'to teach, proclaim' ‖ **Uralic**: Finno-Ugric *tap(p)∇- 'to find, succeed, fit' > Finnish tapaan / tavata 'to find, meet, come across' ⋮ Votyak tupa- 'to come to an agreement (after bargaining), to come to an understanding (with smb.); to fit' ‖ **Altaic** *t'ap∇ 'to hit the target, find' > Turkic *t'ap- 'to find, hit the target, guess' > Old Turkic tap-, Middle Turkic [Ibn-Muhanna] dap- 'to find, learn', Yakut tap- 'to hit the target', Türkmen, Qumuq tap- 'to find', Azeri tap- 'to find, guess', Chuvash tup- 'to find, detect', tupъ 'solution of the riddle' ⦀ pre-proto-Mongolic *taβa- > proto-Mongolic *taɣa- 'to guess' > Dungxiang taɣa-, Class. Mongolian taga-, Halha tā- 'to guess, solve the riddle', Kalmuck tā- 'to tell the fortune, suppose', Ordos, Monguor t'ā- 'deviner, conjecturer'; Mongolic ↦ Ewenki tāɣ-, Lamut tā- 'to recognize\identify (smbd.), guess', Negidal tak-, Ulcha, Nanay taqō- 'to recognize\identify', Class. Manchu taqa- '(er)kennen, können', Sibe Manchu taqa-ma 'to identify' ‖ **Drav.** *tāppₒ 'appointed time, proper time' > Tamil tāppu 'expected moment, apppointed time, convenience', Malayalam tāppu 'proper time, opportunity', Toda top 'time, chance'.

[35] ***menṭ∇** 'to miss one's aim' (→ 'to pass by') > **Uralic**: Finno-Ugric *mentä- 'to miss one's mark, be mistaken' > proto-Lappish *mεntē- id. > Lule Lappish mieddē- ~ mäddē- 'fehlen, Fehler machen, fehlgreifen, sich irren', Norwegian Lappiah mædˈdɛt 'to miss (not hit), mistake (one's way)', Kildin Lappish mėȧnda 'weg, fort' (← *'vorbei') ⁝ Vakh Ostyak mintaɣta- 'to miss one's aim (in shooting)'; Middle Lozva Vogul mänt ~ mäntä ~ mänti, Konda Vogul mänt ~ mēnt, Pelïmka Vogul mäńtl 'längs, entlang', Vogul åm mäntsəm 'passing past me' ('прохождение мимо меня')‖ **Indo-Eur.** *ment- '(in) vain; liar, deceit' > Greek μάτην 'in vain, fruitlessly', μάτη 'fault' ⁝ Latin mentior / mentīri 'to tell a lie', mentītus 'false' ⁝ Old Prussian mēntimai 'wir lügen', epmēntimai 'wir belügen' ‖ ? **Ham.-Sem.**: West Chadic *mant- 'to forget' > Hausa mânčě / mântā, Gwandara mǒči ⁝ Goemay mɛn, Montol mun,

Sura mander ┊ Bole mont-, Karekare mantan, Bele mòntú, Kirfi mùnd-, Gera mŏnɜ̀- ┊ Miya man- id.

The game of the hunters: differents kinds of *antelope and deer* (*gurHa, *ʔE ̄ʝi, *boča, *ʔorʿuˀ [cf. above [5]), *bovines* (*buḲa, *čoma, *čˈaˀwˌ∇ˌR∇ [or *čuR∇]), *wild goats and sheep* (*ɣ|gaw∨, *bukEɣ|ʕ∇, *diga, *kˈäˀɕ́∇), *wild boars* (*ʕ∇p̣∇r∇) Among terms of hunting terminology we find names for *herds* (*p̣oḲü), special names for *lambs and kids* (*gadi). In addition to ungulates — their main source of meat, they paid attention to *fur-bearing animals* (*bUyɜ̂∇), among them *squirrels* (*ʔ|hUr∇[-ba]) and *martens* (*ḳunॉ∇[ŕ∇]).

[36] ***gurHa** 'antelope, male antelope' > **Ham.–Sem.:** Cushitic *√gʷrˈħˀ > Beja garuwa 'antelope' ‖ East Cushitic: Sidamo guruʔˈm-iččo (pl. guruʔme) 'antelope, gazelle, roe' ‖ South Cush.: Iraqw gʷarêħi, Gorowa gʷeraʔahi, Alagwa gʷeraʔai, gʷarehe 'dik-dik antelope', Burunge gʷereha 'decula antelope'‖‖ Omotic: Wolayta, Dawro gārā 'decula antelope' ‖‖‖ West Chadic: Goemay žirri ~ žirri 'roe antelope', Ngizim gɜ̀ràfìyà ʻ(a kind of) antelope' ‖ Central Chadic: Buduma ŋgɜ́rí, Logone garia 'antelope' ‖‖ **Altaic:** Mongolic *gūran 'antelope, male roebuck' > Middle Mongolian guran ʻ(a kind of) 'hornless antelope', Class. Mong. gura(n) 'antelope', Halha-Mong. gur 'male deer', Buryat гуран 'wild goat, elk', Dörböt Oirat gurun, Kalmuck guru 'male roe-deer; saygak antelope'; Mongolian -ᖪ Southern Ewenki gūran 'wild goat'; the length of the Mongolic *u is suggested by the loanword in Ewenki ‖‖‖ Korean: Middle Kor. kòránĭ, New Korean koranni, Korean (Northern dialects) korani 'deer'.

[37] ***ʔE ̄ʝi** 'deer' > **Ham.–Sem.:** Sem. *ˈʔayl- 'ram' > Biblical Hebrew אַיִל ˈʔayil (pl. אֵילִים ʔēˈlīm), Ugaritic ʔil (= *ʔēl-u) 'ram', ? Akkadian (y)āl-u id., Jewish Aramaic אַיְלָא ʔayˈl-ā 'Schiffsbock'; the ancient meaning 'deer' has been preserved in the derived Sem. noun *ʔayˈyal- 'deer, mountain goat' > Biblical Hebrew ʔayˈyāl *Cervus capreolus*, Ugaritic ʔₐyl, Jewish Aramaic אַיְלָא ʔayyāˈl-ā, אֵילָא ʔēˈl-ā, Syriac ʔayyəl-ā 'deer', Mandaic aiala 'deer, hart', Arabic ʔayyil-, ʔiyyal- ~ ʔuyyal- 'mountain goat, stag', Ge'ez ḥayyal 'ibex, mountain goat' (the origin of ḥ- is mysterious), Akkadian ayyal-u 'deer'; Canaanite > Late Egyptian ỉjr (= *ʔayyāli ~*ʔayyōli gen., according

to Vycichl) > Coptic ειul, εειul, ιul, εul id. || **Indo-Eur.** *ʔh̥el-n-
'deer' > Greek ἑλλός ~ ἑλλος (-λλ- < *-ln-) 'young deer'; (with the suffix *-
bʰo-) Greek ἔλαφος 'deer' (<*el-n̥-bʰo-s) | Armenian եłn (gen. եłin) 'female
deer' | Old Irish elit (< *eln̥-t-) 'chamois', Welsh elain 'female deer' |
Old Lithuanian ellenis, Lithuanian élnis, élnias 'deer', Latvian
aînis 'elk', Prussian alne 'female deer' | Old Church Slavonic jelenъ,
Russian о'лень 'deer', Old Church Slavonic alъnь, lanь, Russian лань
'female deer, fallow dear' | ? Tocharian A yäl (with a prothetic y-)
'antelope'; IE *h̥el-n- seems to go back to the oblique form (with *-n-) of a
heteroclitic stem; IE derived stem *ʔel-k̂-/*ḷ-k̂- > Old Indian 'r̥śyas 'male
antelope', Old High German ëlho, Anglo-Saxon eolh, Old Norse elgr,
Russian лось 'elk' || **Uralic:** Tundra Yukagir ile 'deer' || **Altaic:** Turkic
*elälik 'roe-buck, female wild goat' > Old Turkic elik id., Shor, Qïrghïz,
Qaraqalpaq elik 'roe-buck', Tuva elik, Tofalar εlιk 'female roe', Middle
Qïpchaq (XIII c.) elik 'male gazelle', Khakas elĭk, Altay elik 'roe-buck,
female wild goat', Bashqurt ilьk 'female wild goat', Azeri älik 'roe' |||
Mongolic *ili > Class. Mong. ili, Halha-Mong. il, Kalmuck ilə 'young deer,
fawn' || **Drav.** *il(ar)∇- '(a kind of) deer' > Malto ilaru 'mouse deer' |||
Telugu iṟṟi (< *il-r∇) 'antelope' || **Kartv.:** Lashkhi Svan ilw 'chamois',
Lower Bal Svan il ~ hil 'roe'.

[38] ***boča** '(young) deer' > **Kartv.** *°boč- > Georgian boč-iḳ-i 'one-year
old deer', boč-ola 'one-year old calf' || **Uralic** *poča 'reindeer; reindeer
fawn' > Finno-Ugric: proto-Lapp *pɔ̄cɔ̄y 'reindeer' > Norw. Lapp boaʒo,
boc'cu- ~ boᴡcu- '(tame) reindeer', Lule-Lapp pă͞cōy id. | Cheremis
püčö ⁑ pučъ ⁑ püčö 'reindeer' | Sarapul Votyak pužey id. ||| ? Samoyedic:
Kamassian poʔdu 'goat, *Capra sibirica*', Koibal (18th c.) podo 'goat',
pooto '*Cervus capreolus*' ||| Yukagir paja, paje 'elk' || **Altaic:** Tungusic
*buᴦan '(a kind of) deer' > Negidal boᴦan '*Cervus elaphus xanthopygos*',
Orochi buča(n-) id., Ulcha boča(n-)~buča(n-) id., Nanay boč̃ã ⁑ boca(n-) ⁑
buč̃ã id., ? Manchu bucin 'hirschartiges Fabeltier mit langem Schwanze'
(reinterpreted by folk etymology as abbreviation from buhu 'deer' +
tucin beginning'), ? Lamut būᴦ3n '*Moscus moschiferus*' → Yakut
būčän~bīčän id. (ealier also '*Capreolus*'?) → ? Ewenki bīᴦ3n 'roe,

Capreolus'; the route of borrowing may have been different as well: from an unknown Tungusic source to Yakut and then to Lamut and Ewenki ‖ ?? **Ham.–Sem.:** Sem. *√bδχ > Arabic baδaχ-, buδχ- 'lamb' (if *-δχ- < *-θχ-) ‖‖ ?? East Chadic: Lele bísí 'duiker'.

[39] ***buK̬a** 'bovine(s)' > **Hamito–Semitic:** Semitic *ba'k̬ar- 'cattle' > Hebrew בָּקָר bā'k̬ār, Jewish Aramaic בַּקְרָא bak̬'r-ā, Syriac ܒܰܩܪܐ bak̬'r-ā 'cattle', Arabic baqar- '(wild\domesticated) bovines, ox, bull, cow', Sabaic bk̬r 'bovines, head of cattle'; der. Semitic stem *buk̬ar- > Arabic buqār- 'head of (large) cattle', Akkadian bukār- 'cattle' ‖‖ ? Berber *√bk̬r > Ahaggar Twareg bǝɣǝr v. 'be rich' ‖‖ East Chadic: Birgit bògòrò 'male antelope', bògòréɥ 'female antelope', Dangla bógór 'antelope', ? Mokilko b̥òrgú 'horse antelope (kudu), ? Migama b̥ẫrgú 'oryx antelope' ‖ **Indo–European** ≈*būk-/bowk- 'bull' > proto-Slavic *bɨkъ (< *būko-) 'bull' > Bulgarian бик, Serbo-Croatian bȋk, Slovene bìk, Czech, Slovak býk, Polish byk, Russian бык 'bull'; proto-Slavic *bъkъ (< *buk-) > Serbo-Croatian bȁk 'bull' ⫶ Celtic f. *bukk-ō 'cow' > Old Welsh buch 'iuvenca', Cornish buch 'cow', Breton buc'h~buoc'h 'cow' ¶ IE *b- < *bʰ- due to the IE law of incompatibility of voiced aspirates and voiceless consonants ‖ **Altaic:** Turkish *buka 'bull, sire bull' > Old Turkic buqā, Chaghatay buɣa, Turkish boğa, Türkmen, Volga Tatar buga, Middle Qïpchaq buɣa, Qazaq, Uzbek, East Turkic buqa, Azeri, Crimea Tatar, Karaite, Qumïq, Nogay, Qaraqalpaq, Bashqurt, Yakut buɣa, Khakas puɣa, Tuva p̄uɣa, Tofalar p̄uha 'bull' ‖‖ Mongolic (< Turkic?) *buqa 'bull' > Class. Mongolian buqa id., Halha buχ 'sire-bull', Kalmuck buχū 'Stier'.

[40] ***čoma** 'aurochs, wild bovine' > **Kartv.** *°čoma > Imereti Georgian čoma 'cattle (Rindvieh)' ‖ **Drav.** *ɔoma 'wild buffalo' > Pengo homa, Manda hama 'bison', Kui soma 'wild buffalo', Kuwi homma ⅃ homa 'sambar'.

[41] ? ***č̓a᾿w̩∇͵R∇** (or ***čuR∇**) 'bull, calf' > **Ham.–Sem.:** Sem. *'θawar- 'bull' > Hebrew שׁוֹר 'šōr, pl. שְׁוָרִים šǝwā'rīm, Ugaritic θr, Bibl. Aramaic pl. תּוֹרִין tō'rīn, Jewish Aramaic תּוֹרָא tō'r-ā, Syriac ܬܰܘܪܐ taw'r-ā, Arabic ثَوْر θawr-, Epigraphic South Arabian θwr, Ge'ez, Tigre ሰኰር sōr,

Akkadian šūr- | Sem. ⵀ⊅ IE *tawro-s 'bull, aurochs' > Mycenian Greek tawros, Greek ταῦρος id. ‖ Albanian tarok, tarak ‖ Latin taurus, Oscan acc. ταυρομ, Umbrian acc. pl. turuf, toru id. ‖ Old Irish tarb, Irish tarbh, Welsh tarw, Breton tarv, Cornish tarow id. ‖ Slavic *turъ > Old Church Slavonic тоуръ turъ 'aurochs' ⦙ Lithuanian taũras 'aurochs', Prussian tauris 'bison'; Baltic ⵀ⊅ Finnish tarvas 'reindeer' ‖ Old Norse þjórr, Swedish tjur, Dutch (dial.) deur 'bull' ‖‖ **Indo-Eropean** *stewr-/stowr- 'bull' > Avestan staora 'large cattle', Middle Persian stōr 'draught-animal', Persian sutūr ~ ustūr 'beast of burden (horse, mule, ass)' ‖ Gothic stiur 'male calf, bull', Old Norse stiórr, Old High German stior, German Stier, Anglo-Saxon stēor 'bullock, steer', English steer ‖‖ **Altaic:** [1] Tungusic *°ɕur- (~ *ɕir-?) > Ewenki ɕurup 'wild deer (2–3 years old)' and possibly Urmi Ewenki ɕirak, Maya Ewenki ɕirāp 'elk (4 years old)', Negidal ɕirap 'male elk (3–4 years old)' ‖‖‖‖ [2] Possibly Class. Mong. ʒari 'wild deer' and Altay, Teleut, Quu-Kizhi ɕar 'ox (Ochs, Arbeitsochs, кладеный\рабочий бык)', Baraba, Küärik čar 'ox' ⵀ⊅ Class. Mong. car, Kalmuck car, Halha шар 'castrated ox' (in this case Nostr. *awR > Alt. *aR).

[42] **ɣ|gawV** 'wild sheep\goats', (→ or ←) 'wild game' > **Indo-Eur.** *χowi- 'sheep' > Hittite UDU-iš [= *χaw-iš] 'sheep', Luwian χawi-, Lycian χawã id. ‖‖‖ Narrow IE *ˌhˌowi-(s) 'sheep' > Old Indian 'avi- ‖ Greek ὄις id. ‖ Latin ovi-s ‖ Old Irish ói 'sheep' ‖ Old Norse ǽr, Anglo-Saxon éowu, éowe, Old Saxon ewi, Old High German ouwi, ou 'sheep', English ewe, as well as Gothic awistr 'sheep-cote, sheep-pen', awēþi 'flock of sheep' ‖ Lithuanian avis, Latvian avs ⦙ Old Church Slavonic ovь-ca, Russian овца 'sheep'; Church Slavonic, Old Russian ovьnъ, Serbo-Croatian ȍvan, Bulgarian o'вен, Czech oven 'ram' ‖ Armenian hoviw (< *ˌhˌowi-pā-) 'shepherd' ‖‖ **Ham.-Sem.:** Egyptian ꜥw.t 'Kleinvieh (Schafe und Ziegen)', 'Wild', 'vierfüssige Tiere' ‖‖‖ ?? West Chadic: Angas-Goemay *ɣV 'goat' > Sura ɣə̄ᵌ, Angas ɤɯ̄, Yiwom ɤ3̄ ⦙ Fyer ʔō̌ id. ⦙ ? Warji aw̑áy id. ‖ Central Chadic: Gude gr.: Nzangi hoᵕe, Bata-Garua hŭé 'goat' ⦙ Mandara: Nakatsa oɤʷa, Glavda ʔágʷà, Dghwede ɤ̑ʷè, ɤʷè id., Giziga ʔáw ⦙ Zime-Batna úhʷú id. ‖ ? East Chadic: Dangla áw-kò

id. ‖ **Altaic** *āb∨ 'wild game, hunt' > Turkic *āb id. > Old Turkic āv 'hunt', Türkmen āv, Turkish av, Uzbek ɒw, East Turkic av⁓åw⁓ow, Qumïq haw, Crimea Tatar, Karaite av 'wild game, hunt', Qazaq, Volga Tatar av, Qïrghïz ū 'hunt' ‖‖‖ Mongolic *aba > Middle Mongolian, Class. Mong. aba, Halha av 'chase, hunt' ‖‖‖ ? Tungusic *abdu-(ₗnⱼ) 'cattle, flock' > Ewenki abdu id., 'domesticated reindeer', Lamut abdu 'husbandry, property', Negidal abdun 'flock', Orok abdu 'husbandry, property, wealth'.

[43] *diga 'goat' > **Kartv.** *dqa- 'goat' > Old Georgian, New Georgian tχa, Megrelian tχa- (pl. tχaᴉ-), Laz (m)tχa- [pl. (m)tχaᴉ-], Svan daqʒᴉ-, daq- ‖ **Ham.-Sem.:** Omotic *d∇g-~*d∇ḳ- 'capricorn, lamb' > Oyda doge 'greater kudu', Basketo daḳiši, Doka dakiša 'lamb', Badditu deggele 'goats' ‖‖‖ West Chadic: Angas-Goemay: Chip dìgun 'he-goat', Kofyar dʒgúŋ id. ┊ Ron: Fyer ⁿdákùs 'he-goat' ┊┊ Central Chadic: Padokwo dúg-zuma̰ id. ┊ Tera žīg 'goat' ┊┊ East Chadic: Ndam ḍ̣ɡâ, Tumak žiɡ 'goat' ‖ **Indo-Eur.** *digʰ-~*dik- 'goat' > Greek (dial.) [Hesychius] δίζα 'goat' ┊┊ Albanian dhi ┊┊ Old High German ziga 'goat' (> German Ziege) ┊┊ Armenian tik 'leather bottle, goat's skin' ◇ IE *-k- is a regular reflex of the consonant *-q-; the origin of the voiced *-gʰ- is not clear; the initial *d- for the expected *dʰ- is probably due to the IE incompatibility law, forbidding a combination of voiced aspirates and voiceless consonants in the same root.

[44] *kʳäˀ꜀∇ 'wild goat' (or 'sp. of antelope') > **Kartv.:** Svan ḳwi꜀ra 'wild goat' ‖ **Ham.-Sem.:** Berber *√ɣs (meta-emphatization from *√k-ṣ) > Ahaggar Twareg ti-ɣse, Iznacen, Rif ṭi-χsi 'goat' ‖‖‖ Omotic: Bencho kéš 'goat' ‖‖‖ West Chadic: Hausa kác̆áwrî '(a kind of) antelope', Ngizim gáskây 'roam antelope' ┊┊ Central Chadic: Kilba kušiši 'goat' ‖ **Altaic:** Turkic *kʳä꜀i 'goat' > Old Oghuz, Chaghatay, Karaite käč̆i, Turkish keçi, Osman ǵäži, Azeri, Gagauz keči, Türkmen geči, Volga Tatar käžä, Bashqurt käzä.

[45] *bukEɣ|ʕ∇ 'billy goat, ram' > **Ham.-Sem.:** Sem.: ? Ge'ez ቦሐኵbaħkʷ 'ram, billy goat' (⟷ Ge'ez በሐከኵbaħakʷ id.) (acc. to Leslau, from Cushitic) ‖‖‖ Berber *√bgg > Ahaggar Twareg a-baǵuǵ 'young ram' ‖‖‖ Cushitic *√bkʕ (>*√bgʕ by assimilation) 'sheep, goat' > Beja bōk, Amar'ar Beja bok 'billy

goat'⫶ Agaw *bəɡˌ∇ˌʕ- 'sheep' > Khamir bɛɡ-a (pl. biɡ), Kwara baɡ-a, Kemant bɐɡa ⇸ Ge'ez በጎቦ baɡɡaʕ 'sheep, ram', Tigray bɛɡʕi, Tigre bɔɡɡuʕ id.; Tigray → Bilin bɐɡɡ-a (pl. bɐɡɡ) id. ⫶ South Cush.: Iraqw, Gorowa bēʕi, Alagwa bēʕi 'sheep', Burunge bēʔ-imo, pl. bēʔ-a id., Kwadza baʔamuko 'ewe lamb', Dahalo ɓèʔa 'buffalo' ⫼ Omotic: Kafa baɡē, Shinasha baɡɡō 'sheep' ⫼ Chadic *(m)bak|ɡ 'ram, sheep' > West Chadic: South Bauchi: Kir mbak 'male' (referring to rams in: mbak parɨm 'ram'), Dira bɔɡálá, Geji bàɡɔ́llà 'ram' ⫶ Central Chadic: Gude bàɡá, Fali of Jilbu bɔ̀ɡà, Fali of Muchella bɔ̀ɡɔ̀, Fali of Bwagira bɔ̀ɡɔ̀n, Bata-Garua mbáɡe, Bata-Demsa bāɡé 'sheep', Mwulyen m̩bâɡá 'ram', m̩báɡàtí 'sheep', Bachama m̩báɡá 'ram', mbàɡátɨ 'sheep', Gudu mbœ́ksü 'sheep' ⫶ Glavda mbákəlaka, Gava mbàkùlɔ́kà 'ram' ‖ **Indo-Eur.** (*bʰū̂ĝHo- >)*bʰū̂ĝo-s ~ ("Koseform", according to Pokorny) *bʰukko-s 'billy goat, ram', f. *bʰū̂ĝ-ā ~*bʰukk-ā 'she-goat, ewe' (Devoto: '*Capra prisca*') > Av būza 'he-goat', New Persian buz 'goat (male or female)' ⫶ Armenian buc '[sucking] lamb' ⫶ Celtic: Middle Irish bocc, pocc, Welsh bwch, Cornish boch, Breton bouc'h 'Bock' ⫶ Germanic *bukka- > Old Norse bukkr, bokkr, bokki 'buck', Anglo-Saxon bucca > English buck, Old High German boc > German Bock ‖ ʔσ **Altaic**: Mongolic *buɡu 'deer' > Class. Mong. buɡu, Halha-Mong. buɡa, Kalmuck buɣē 'male deer', Monguor b_uɡ_u 'deer', Middle Mongolian buɣu- 'deer'; Mongolian → some Tungusic lgs.: Ewenki buɣu, Solon boɣo '*Cervus elaphus xanthopygos*', Manchu buɣu ~ buχo ~ buχu 'deer' ⫼ Turkic *buɡu > (or Mongolian ⇸) Old Uighur (13th c.) buɣu 'deer', Turkish (dial.), Uzbek, Qïrghïz buɣu, Nogay buɣı 'male deer', Chaghatay بوغو buɣu 'kind of antelope or wild goat', Qazaq bū̆ɣı 'deer'.

[46] *ʕ∇p∇r∇ 'wild boar' > **Ham.-Sem.**: Sem. *√ʕpr > Arabic ʕifr- ~ ʕufr 'wild boar, swine, young pig' (Freytag: ʕifr- 'porcus, aper', ʕufr- 'porcus') ‖ **Indo-Eur.**: Narrow Indo-Eur. *apro-s 'wild boar' (with *a on the analogy of *kapro-s 'he-goat') > Latin aper, -ī 'wild boar', Umbrian apruf, ABROF id. (accus. pl.), aprunu id. (acc. sg.) ⫶ Germanic *ebura- 'wild boar' > Anglo-Saxon eofor, Middle Low German ever, Old High German ebur, German Eber ⫶ Balto-Slavic *weprya- (with *w- on the analogy of some other word) > Latvian vepris 'castrated boar' ⫶ Slavic

*veprъ ~ *veprь 'wild boar' > Old Russian вепрь, Russian вепрь, Bulgarian 'вепър 'wild boar', Ukrainian 'вепер 'wild boar, hog', Serbo-Croatian vèpar, Polish wieprz, Czech vepř 'hog' ¦¦ ?σ Thracian ἔβρος 'ram'.

[47] ***ʕir⌈i⌉** '(male, young) artiodactyl' > **Ham.-Sem.**: Sem. *'ʕayr- ~ *ʕīr- 'male wild ass, ass foal' > Biblical Hebrew עַיִר 'ʕayir, Samaritan Hebrew 'īr 'male ass, ass foal', (with a possessive pronominal suffix) Biblical Hebrew עִירֹו ʕī'r-ō 'his ass foal' (the pl. form of the Masoretic tradition עֲיָרִים, עֲיָרִם ʕăyā'rīm is on the analogy of *'1a2a3- nouns, cp. the Samar. Hebrew cognate form עירם 'īrəm), Ugaritic ʕr, Jewish Aramaic עִירָא ʕē'r-ā 'ass foal', Arabic ʕayr- 'wild ass, ass' ¦¦ **Kartʋ.** *°ir- > Georgian irem- 'deer' ¦¦ **Indo-Eur.** *⌈ħ⌉'er(i)- > Narrow IE *er-, eri- '(some) horned artiodactyl' > Latin ariēs, ariēt- 'ram' ¦¦¦ Baltic: Prussian eristian 'Lämmchen', Lithuanian (j)éras, Latvian jêrs 'lamb' ¦¦¦¦ NaIE *er(i)-bʰ- (with the suffix *-bʰ(o)- of animal names) > Greek ἔριφο-ς 'Böcklein, junge Ziege' ¦¦ Celtic: Old Irish heirp (*erbʰ-ī-) 'dama, capra', erb(b) (*erbʰ-ā-) 'cow', Gaelic earb 'Reh' ¦¦ Tocharian yriye, yari 'lamb' ¦¦ **Drav.** *ir- '(a kind of) deer, stag' > Old Telugu iri 'stag', Tamil iralay 'stag, kind of deer', Kannada eraḷe, erale, Tulu eraḷe 'antelope, deer' ◇ The IE root results from coalescence of two Nostr. roots: the one in question and Nostr. *ʔerq⌈i⌉ '(a species of) horned ruminant artiodactyl'. I am grateful to V. Blažek for drawing my attention to this detail and to the Tocharian cognate of the root.

[48] ***p̣oK̲u** 'pack, wild cattle' > **Indo-Eur.** *peku / *pek̂we- 'cattle' > Old Indian 'paśu-~pa'śu- (gen. paś'vaḥ) 'cattle', Avestan pasu- id. (mainly 'Kleinvieh') ¦ Latin pecū (gen. pecūs), pecus (gen. pecoris) 'cattle', Umbrian pequo 'pecua' ¦ Germanic: Gothic faíhu 'property', Old Norse fē, Anglo-Saxon feoh, Old Saxon fehu, Old High German fihu 'Vieh' ¦ Lithuanian pekus, Prussian pecku id. ¦¦ **Altaic** *p'ok'üŕ- 'bovine animal, bull' > Turkic *ₕjökür-/*ₕjokuŕ- 'bull, ox' > Old Turkic öküz 'bull, ox', Sarï-Yugur kus~qus, East Turkic öküz, (dial.) hōküz, Uzbek hwkiz 'ox', Turkish öküz, Türkmen öküδ, Azeri öküz, Crimea

Karaite ög̃üz, Trakai Karaite ög̃üź 'bull, ox', Qumuq, Qarachay-Balqar ög̃üz 'ox', Crimean Tatar oguz 'bull', Lobnor ög̃üs 'bull', Qazaq, Nogay, Qaraqalpaq ög̃iz 'ox', Volga Tatar ügьz, Bashqurt ügьð 'bull', Yakut oɣus 'ox, male domestic animal', Chuvash vьg̃_ьr 'bull' ||| Mongolic *φüker 'bovine animal (bull, ox, cow)' > Middle Mongolian hüker 'large cattle', Class. Mongolian üker, Halha, Buryat үхэр, Kalmuck ükr̥, Moghol ûkår, Dagur хûkûr, Dongxiang fugie(r), Monguor fug_uor 'bull, ox' || ??? **Ham.- Sem.:** East Chadic: Ndam pàg̃ȝr 'antelope'.

[49] ***gadi** (or ***gati**?) 'kid, young goat', ? '(a kind of) antelope' > **Ham.- Sem.:** Sem. *'gadiy- 'kid, lamb' > Biblical Hebrew גְּדִי ga'dī 'kid\lamb', Punic gdꜣ, [Plautus] GADE, Old Aramaic gdꜣ 'goat', Jewish Aramaic גַּדְיָא gad'y-ā 'kid\lamb', Syriac 'gad'y-ā 'kid', Mandaic gadia 'kid, young goat', Arabic ǧady- 'kid (chevreau)', Akkadian gadû 'male kid' ||| Berber *ɣai̯d (< pre-Berber *ḳai̯d) 'kid, (young) goat' > Ahaggar Twareg e- ɣai̯d, Tayert, East Tawellemmet e-ɣьyd, Ghat i-ɣid, Ghadamsi a-ʕīd (pl. ʕid-ān) 'kid', Ait-Izdeg i-ɣəyd 'young billy-goat (jeune bouc, chevreau)', Tashelhit a-ɣå̃d 'billy-goat' ||| Chadic: West Chadic: Hausa gàdā̃ 'crested duiker (antelope) *Cephalophus Grimmi*', gàdár kúrmì 'duiker *Cephalophus rufilatus*', Pa'a gàtará 'buck' || Central Chadic: Zime-Batna gódàу 'buck', Dghwede ȣȝdȝ́ g̃írè 'antelope' || **Indo-Eur.** *gʰg̃ʰaydo- '(young) buck, goat' > Latin haedus 'kid, young goat' || Gothic gaits, Old High German geiz, Old Norse geit, Anglo-Saxon ȝāt > English goat ¶ The *media* *-d- (for the expected *-dʰ-) is obscure || **Drav.** *kaṭ- 'young male of horned domestic animal' > Tamil kaṭā, kaṭavu, kaṭay 'male of sheep\goat\buffalo', kaṭāri, kiṭāri 'heifer, young cow', Malayalam kaṭā, kiṭā, kiṭāvu 'young male of cattle', Kota kaɾɔ na·g 'buffalo calf between 2 and 3 years', kaɾɔ kurl 'cow calf between 2 and 3 years', Kannada kaḍasu, Kodagu kaḍɨɔi, Tulu gaḍasə 'young cow\buffalo', Gondi kāɾ̃ā 'young buffalo', Konda g̃rālu, Kui g̃rāḍu 'calf', Kui kʼrai̯ 'young female buffalo\goat', Kurukh kaɾ̃ī id., kaɾ̃ā 'young male buffalo', Brahui xaɾ̃ 'ram', xarās 'bull, bullock' ◇ The preconsonantic (rather than expected postconsonantic) position of *i̯, *y in Berber and Indo-Eur. is due to

metathesis (possibly favoured by root structure patterns in both languages).

[50] ***bUyẑ∇** 'fur-bearing animal' > **Indo-Eur.** *bʰel- 'marten' or sim. > Latin fēlēs 'wild cat, marten, polecat' ‖ Welsh bele (< *bʰelego-) 'marten' ‖ **Uralic** *poyẑ∇ 'ermine' > proto-Lapp *pōytɜk id. > Norw. Lapp buoidâ ~ buoiˈdâgâ, Kildin Lapp puy:dey ‖‖‖ Samoyedic: Tundra Nenets пия, пияко, Forest Nenets pʸīy:eą ᵈ pīy:eą, Bay Enets fiéda, Nganasan fīdu, pīdu, Mator hudja 'ermine' ¶¶ Nen пияко and originally Lapp *pōytɜk are diminutive forms‖ **Altaic:** Mongolic *buĺuˈgan 'sable' > Middle Mongolian bulugan ~ bulɣan, Class. Mong. bulagan, Halha-Mong. булга(н), Kalmuck булхн bulɣan id. ‖ **Drav.** *puḷˌli, 'tiger' > Tamil puli, pul, Malayalam, Kannada, Telugu puli, Kota puɜ, Toda püṣy, Tulu pili, Koraga hili, Kolami, Naikri pul, Naiki pul(a), Gadba pullu ᵈ pulu ᵈ berpul, Gondi pullī ᵈ puli ᵈ pul.

[51] ***ʔhUr∇(-ba)** 'squirrel or a similar animal' > **Ham.-Sem.:** Sem. *°ʔh∇rrab- > Akkadian arrabu 'dormouse (?)', 'jerboa (?)' ‖ **Indo-Eur.** *wer- (and with reduplication: *werwer-, *wewer-, *waywer-, *wiwer-, *wāwer-) 'squirrel' and sim. > New Persian varvara 'squirrel' ‖ Latin vīverra 'polecat' ‖ Welsh gwiwer, Breton gwiber 'squirrel' ‖ Lithuanian vaiverìs ~ vaivaras ~ vaivarys 'male polecat', vėverìs, vaiveris, voverìs, voverẽ 'squirrel', Latvian vãvere, -is id., Prussian weware id. ¦ Slavic *věver-ьka, -ika 'squirrel' > Old Church Slavonic věverica, Polish wiewiórka, Czech veverka, Ukrainian вивірка, Serbo-Croatian (v)jeverica ‖ Germanic *aįk-werna~*īkwerna 'squirrel' > Anglo-Saxon āc-weorna, Old Norse īkorni, Old High German eihhurno, eihhorn, German Eichhhorn 'squirrel' ‖ **Uralic** *ora, *ora-pa 'squirrel' > Finnish orava 'squirrel', Estonian orav, oravas id., proto-Lapp *ɔrēv > Norw. Lapp oarˈre ¦ Erzya & Moksha Mordvin ur 'squirrel' ‖ Cheremis ur 'squirrel' ‖ Ziryene ur id. ‖‖‖ Samoyedic: in a Samoyedic language of the Sayan region (Pallas: 'ejus stirpis monticolis sajanensibus') orop 'Sciurus striatus' ‖ ? **Drav.** *uṟutt- > Tamil uṟuttay, Telugu uṟuta 'squirrel'.

[52] *ḳun|n̂∇(ŕ∇) 'small carnivore (marten, polecat, wild cat, or sim.)' > **Kartu.** *ḳwenr- 'marten' > Old Georgian ḳuerna-, Georgian ḳverna-, Megrelian ḳvinor-i, Laz ḳvenur-i, Svan rkʷen- ~ ḳ(ʷ)en- id. || **Indo-Eur.** (attested in Balto-Slavic only) *keun-/*koun- 'marten' > Lithuanian kiáunė, kiaunẽ, Latvian caûna, -e, Prussian caune id. ¦ Slavic *kuna 'marten' > Church Slavonic **коуна** kuna 'αἴλουρος, felis', Bulgarian ˈкуна, Serbo-Croatian, Slovene kúna, Czech, Polish kuna, Old Russian **коуна** kuna, Russian (dial.) ˈкуна ~ куˈна, Ukrainian куˈна 'marten'; derived Slavic *kunica 'marten' > Church Slavonic **коуница** kunica 'αἴλουρος, felis', Serbo-Croatian kùnica, Slovene kúnica, Polish kunica, Russian куˈница 'marten' || **Ham.-Sem.:** South Cushitic: Iraqw qaínâʔi/a 'civet cat' ||| ? Chadic: West Chadic: Hausa kʸânwà, Pero kã́ndà 'cat', Bole šɜnwa 'wild cat' ‖ East Chadic: Somray kójna 'cat' ||| ? Sem. *°ḳ∇nd∇r- (< **ḳ∇nr-?) > Arabic قندر qndr (with unknown vowels) 'beaver' || **Altaic** *kˌʼ‿ürä̃nä (metathesis from **kˌʼ‿ünä̃ŕä) 'marten, polecat' > Turkic *kˌʼ‿üŕe|än > Narrow Turkic *kˌʼ‿üze|än 'polecat' > Old Turkic küzän id., Cuman kara küzen 'polecat', Türkmen g̃öδen, Uzbek сассиҝ кӱзан sassiq kwzan, Qazaq, Altay, Khakas küzen, Volga Tatar кɘзɘн kb̥zän, Bashqurt kb̥δän 'polecat', Tuva küzen 'marten' ¦ Old Bulghar ⇴ Hungarian göröny 'polecat'||| Mongolic *kürene > Class. Mong. kürene, Halha-Mong. хурнэ 'skunk, polecat, weasel', Kalmuck кʏрн kürnə, kürŋ 'polecat, iltis' ◇ The word may have denoted some small carnivore (marten, polecat, wild cat, or ichneumon; all of them live in different parts of Southwestern Asia; in modern Israel the marten is known as נְמִיָה nimiˈya).

4.2. Gatherers

They *harvested* (*qaRp|p∇ and *ʒük∇; see above entries [15] and [16]) different kinds of *cereals* (*gaL∇ and *χänṭ∇̄ cf. above entries [17] and [18]; *diḳ∇), plucked *figs* (*ʔibrE [1], *ʒ|ʒ́ugb∇), other kinds of *fruit* (*bˈiˈŕˈuwˈga), *nuts* (*ḲuS∇, *L∇ˌʟwˌǯ∇), possibly *pistachio nuts* (*buṭ∇), gathered several kinds of *berries* (*mˈoˈˌyˌʒ̂∇, *marˌyˌa) and possibly *peas* (? *ḲEr∇), dug out *root-crops* (*mˈuˈrḳ∇[-ŋḲ∇]).

[53] *diḳ∇ 'edible cereals or fruit' > **Hamito-Semitic:** Berber *d̪āḳ- > Ahaggar Twareg taḍaq (pl. tiḍāɣīn) 'grain (of cereals)', Taitoq taḍaq (pl.

tiḏaɣin) 'grain (of wheat, barley)' ¶ The vowel *-ā- belongs to the Ham.-Sem. derivational pattern of collective nouns ||| ? Egyptian dḳr 'fruit' (a general word for edible fruit) || **Kartv.** *diḳ- 'wheat' > Georgian diḳa 'wheat (*Triticum persicum*)', Laz diḳa 'wheat' || **Altaic** *diK- ⇨ diK-ktä 'edible berries' > Turkic *jiɡdä 'edible berries (of *Elaeagnus*), the berries *Zizypha rubra'* > Old Turkic jiɡdä 'jujube tree (*Zizyphus angustofolia*) and its fruit (an edible berry)' or '*Elaeagnus*', Türkmen iɣde '*Elaeagnus* and its berry; date fruit', Türkmen (dial.) ǰiɡde '*Elaeagnus*', Turkish iğde, Azeri iɣdä, Qïrghïz, Qaraqalpaq ǰiɣde, Qazaq žьɣde, Uzbek ǰiɣda ~ ǰiɣdä '*Elaeagnus* and its berries' ||| Tungusic *ʒikte 'berry' > Ewenki jiktз id., Negidal jiktз 'great bilberries, bilberries, whortleberries', Orochi, Ude ǰiktз 'great bilberries' || **Drav.** *tikₗkⱼ∇ > Kurukh tīxbl 'rice, paddy cleansed of its husk', Malto tiqalu 'rice'.

[54] *ʒǰǯuɡb∇ '(a kind of) fig tree' > **Ham.-Sem.:** Sem. *°√zɣb > Arabic ʔazɣab- 'a big fig-tree' ||| ? Egyptian dзb 'fig, fig-tree' ||| Central Chadic: Glavda acúwa 'fig tree' || **Drav.** *ɕuv- 'fig, fig tree' > Tamil cuvi 'white fig, *Ficus infectoria*; stone fig, *Ficus gibbosa parasitica*', cuvalai̯ 'pipal, *Ficus religiosa*', Kolami ʒuvi id., Malayalam cuvann-āl '*Ficus infectoria*', Kannada juvvi mara id. , Telugu juvvi '*Ficus tsiela*', Parji ʒū meri, Gondi ʒū maṛa 'a species of *Ficus*' (Kannada mara, Parji meri, Gondi māṛa 'tree').

[55] ?? *bˈiˈrˈuwˈɡa '(a kind of) edible fruit' > **Kartv.** *brɡen or *berɡwen 'wild pear' or 'wild plum' > Georgian (dial.) b(e)rɡena 'wild pear *Pyrus clicifolia*', Svan barɡwen, bärɡen 'wild plum' || **Indo-Eur.** *bʰrūɡ- 'fruit', 'to use (as fruit)' > Latin frūɡ- (nom. frūx, gen. frūɡis) 'fruit', Umbrian accus. pl. frif, fri 'fruits', Latin fruor, frui, frūctus ~ fruitus sum v. 'have the benefit of', frūmentum 'corn', Oscan fruktatiuf (*frūɡetātiōnis) 'fruit' ‖ Gothic brūkjan, Old High German brūhhan, Old Saxon brūkan, Anglo-Saxon brūcan 'make use of', German brauchen id., 'to need', Gothic brūks, Old High German brūhhi, Anglo-Saxon brȳce 'useful' || ?? **Ham.-Sem.:** Sem.: Arb birqūq- ~ burqūq- '*prunum, malum Armeniacum*' (unless ⇦ Late

Greek προκόκκιον ~ πρεκόκκιον ⇠ Latin praecox) ‖ ? (ambiguous)
Drav. *pirʳ̄ka (~ *pirʳ̄la) 'green mango fruit' > Kannada pirika,
prīka, pirka id., Pengo, Manda pr̄la id., Kui pr̀ia, Kuwi pr̄la 'unripe
mango fruit' (unless akin to Sem. *'piriy- 'fruit').

[56] ***Ḳ̣uS∇** 'nut' > **Indo-Eur.** *kos(e)lo- 'hazel' > Latin corulus
'hazel-tree', colurnus 'made of hazel-wood' ‖ Celtic *koslo- 'hazel' >
Gaulish koslo- id. (in proper names), Old Irish, Old Welsh coll 'hazel',
Cornish col-widen id., Old Breton coll 'made of hazel-wood' ‖ Old High
German hasal(a) > German Hasel, Anglo-Saxon hæsel > English
hazel, Old Norse hasl 'hazel' ‖ ? Old Lithuanian kasulas 'Jägerspieß'
(Pokorny: 'Jägerspieß' als 'Hasler') ‖ **Altaic** *kʻusi 'nut' > Turkic *k̯ʻusɪk
'nut' > Old Turkic qusɪq 'pine kernel', Altay, Quu-Kizhi, Qumanda quzuq,
Khakas χuzuχ 'nut', Teleut, Quu-Kizhi, Sagay, Koibal Turkic quzuq 'cedar
nut'; Turkic ⇻ Persian qusūq 'pine kernel' ‖‖ Mongolic *qusi-(gan) 'nut' >
Class. Mong. qusi-gan (pl. qosi-d), Halha-Mong. χᵤшга 'nut, walnut';
back formation: Mongolic *qusi 'cedar' > Class. Mong. qusi, Halha-Mong.
χᵤш id. ‖‖‖ Tungusic *χusi̯-kta 'acorn, nut' > Ude uʰikta, Ulcha osta,
Nanay χosaqta ~ osaqta 'acorn', Urmi Ewenki usikta 'oak' (← *'acorn'),
Class. Manchu usiχa 'nut'.

[57] ***L∇ǯ∇** (or ***L∇wǯ∇**) '(a kind of) nut', 'nut-tree\shrub' >
Kartvelian: Georgian leǯa 'green walnut-shell' ‖ **Ham.–Sem.:** Semitic
*lūδ|z or *lawδ|z- 'almond tree' > Hebrew לוּז lūz, Canaanite ⇻ Aramaic:
Jewish Aramaic, Syriac luʾz-ā, Mandaic luza; Aramaic ⇻ Arabic lawz-,
Geʿez lawz id., Harari lāz 'groundnut' ‖ **Indo-Eur.** *lazd- 'hazel-bush' >
Lithuanian lazdà ~ lazà 'stick, hazel-stick', lazdýnas 'hazel-bush',
Latvian la(g)zda, lazds, lęgzda, lęgzds id., Prussian laxde 'hazel-
bush' ‖ Armenian last 'raft, boat; wooden bedstead, wooden bank' ‖ Tosk
Albanian lajʾthi 'hazelnut, hazel-bush'.

[58] ***butₜ∇** 'pistachio tree\nut' > **Ham.–Sem.:** Sem. *'butₜᵤₙ|m- id. >
Hebrew pl.בָּטְנִים bɔṭʾnīm *Pistacia terebinthus* L.', Jewish Aramaic buṭʾn-
ā, buṭʾm-ā, Syriac bɛṭm-əʾṭ-ā id., Arabic buṭm- 'terebinth tree', Geʿez (<

Arabic?) bəṭm~būṭm 'terebinth tree', Akkadian buṭn-u 'terebinth tree\wood', buṭn-atu, buṭum-t-u, buṭṭutu 'pistachio tree\wood\nut' ‖ **Altaic:** Turkic *buturɣāq > Old Turkic buturɣāq 'a thorn tree which is shaped like a pistachio tree and has thorns which catch the clothing', Siberian Tatar (Tar dial.) buturɣaq 'a tree which has split and is bound round to save it from collapse'; Turkic *bitrik 'pistachio nut' > Old Turkic bitrik id.

[59] ***marₗyⱼ∇** '(mul-, black-) berries' > **Indo-Eur.** *mor- 'mulberry, blackberry' > Armenian mor 'blackberry', mori, moreni 'blackberry bush' ¦¦ Greek μόρον 'mulberry, blackberry' ¦¦ Latin mōrum id. ¦¦ Old Irish nom. pl. mera 'mulberry tree', Welsh merwydd(en) 'mulberry' ‖ **Ham.-Sem.:** ¿ Egyptian mr 'mulberry tree (morus tree)' (according to Budge, supposedly attested in the Palermo Stele) ¶ The word is mentioned by Budge only and not confirmed by more reliable sources and is therefore questionable ‖ **Kartv.** *marc̣q̇w- 'strawberry' > Georgian marc̣q̇v-, Svan basq̇i-, bäsq̇- id. ¶¶ This is a compound of *marₗyⱼa + *c̣∇mq̇U (a root represented by Kartv. *c̣imq̇w- 'strawberry [or bilberry]' > Georgian c̣mq̇va, Megrelian camʕwa, cimʕwa 'strawberry', Upper Bal Svan cinq̇a 'bilberry') ‖ **Uralic:** Finno-Ugric *marya 'berries' > Finnish marja, Estonian mari id. ¦ proto-Lapp *mōryē id. > Norw. Lapp muorʹje, etc. ¦ Erzya & Moksha Mordvin maŕ 'berries' (in compounds) ¦ Highland Cheremis mör 'berry', Eastern Cheremis mör ᴅ mörö 'garden strawberries' ¦¦ Ob-Ugric *m∇:r- > proto-Vogul *mārɨ > Middle Lozva Vogul moåri, North. Vogul må:ri 'stalk of berries', moriŋ/p pil 'bunchy berries'; proto-Ostyak *murəp 'bunch of berries' > Teryugan Ostyak murəp id., etc. ‖ **Altaic** (according to A. Dybo) *merü > Turkic *m|bürü 'strawberry' > Quba Azeri müri 'strawberry' ¦¦ Korean mɜru, Southwestern Korean morä 'wild grapes'.

[60] ***mᵣoᵔₗyⱼ2̂∇** '(a kind of) berry' > **Uralic:** Finno-Ugric *mo2̂∇ 'berries of some shrub' > Cheremis muδъ ᴅ moδo 'bilberries' ¦ Permian *moĺi 'berry, stone of a fruit' > Votyak мульы muĺɨ 'stone of a fruit', Votyak (dial.) muĺɨ ᴅ moĺʒ 'berry, nut', Ziryene ńur-moĺ 'cranberries' (ńur 'swamp'), moĺ 'button, stone of a fruit', Yazvian tʌr-ʹmuĺi 'cranberries' ¦¦

proto-Ostyak *wĭr-məĺ 'red-currant' (*wĭr 'blood') > Teryugan Ostyak wirməἀ, etc. ¦ Hungarian mɛggʉ 'morello cherry (*Prunus cerasus*)' ‖ **Altaic**: Tungusic *mile-kte ~ (?) *moˡⁱ¹-kte 'ashberry' > Zeya Ewenki molikta, Ewenki (dial.) miktɜ, Negidal miktan, Ulcha, Orok milɜktɜ, Orok miktɜ ~ mittɜ id. ‖ ?? **Ham.-Sem.**: Sem. ¿*√mŝmŝ > Arabic mišmiš- [registered in Kamus] 'a kind of fruit' (Freytag: 'fructus nomen multum refrigerantis et debilitantis stomachum'), [Kamus] 'the plum ʔiǧāṣ-un', 'apricot' ‖ ?? **Indo-Eur.** *māl- 'apple' > Latin mālum ┊ Greek μῆλον, Doric Greek μᾶλον ┊┊ Albanian mollë id. ◇ If the IE cognate is valid, the Nostr. reconstruction may be *moyŝ∇ (where *y is responsible for the length of the IE vowel, but was lost due to a law ruling out *y before sonants). The original *o may have been palatalized in Ob-Ugric, Hungarian (and Tungusic?) due to the influence of this *y.

[61] *ḲER∇ 'fruit of a leguminous plant' or sim. > **Ham.-Sem.**: Sem. *ḳ∇r∇θ- > Syr ḳɛraṭ'ṭ-ā 'fruit of the locust or carob tree', Arb قَرَظ qaraẓ- 'fruit of acacia' ||| East Chadic: Kwang kìrī, Kera kˊírí, Jegu gír(k) 'bean(s)' ‖ **Indo-Eur.** *k̑iker- 'pea(s)' > Armenian sisɛṙn 'chick-pea' ┊┊ Greek κριός id. ┊┊ L cicer 'chick-pea' ◇ Sem. *-θ- may go back to the second part of a nominal compound.

[62] *mˡuˡrḳ∇(-ŋḲ∇) 'root, root-crops, edible roots', (→ ?) 'sinew' > **Kartv.** *°murḳ- > Georgian murḳ-i 'stump of cabbage' ‖ **Indo-Eur.** *mr̥k- (~ *br̥k-) 'edible roots, carrot' > Anglo-Saxon more, moru 'edible root, carrot, parsnip', Old High German mor(a)ha, German Mohrrübe, Möhre 'carrot' ┊┊ proto-Slavic *mr̥kⁱ / *mr̥kⁱv- 'carrot' > Serbo-Croatian mȑkva, Slovene mȑkev, mȑkva, Old Czech mrkev, Czech mrkva, Old Russian morkovь, morkva, Russian морʼковь ¦ ? Baltic *burkū > Lithuanian burkū̃nas id., Latvian burˊkans id., '*Aetusa cynapium*' ┊┊ Greek [Hesychius] βράκανα 'wild vegetables' ‖ **Ham.-Sem.**: East Cushitic *murḳ- 'tendon, nerve' > Oromo morg-aya id., Konso murq-a 'tip of the nose', Gidole morḳ-a 'bone of nose, kneecap, soft part of ensete', Somali muruq- 'muscle', Burji morgánka míč̣a 'ankle', Yaku morž̌-iʔ 'sinew of neck' ‖ **Drav.** *mur∇ŋk- > Tamil muruŋkai '*Moringa*

pterygosperma, Indian horse-radish tree', Kannada nugga, nuggi, Tulu nurige, nurge, Telugu munaga, Parji muŋga, mulŋga, Gondi (dial.) mulgē, mungē id. Konda muŋna maram, muluŋa mara id. (mara, maram 'tree'), Malayalam muriṉṉa '*Hyperanthera moringa*, Indian horse-radish', Kurukh muŋgā 'a shrub, the fruits & leaves of which are eaten as curry'; Drav. ↔ Old Indian muraŋgi-, muruŋgi- '*Moringa pterygosperma*' || **Altaic:** Tungusic *°muˈnṉˈi 'tendon' > Ewenki muŋi ⁴ mānṉī 'tendon (at the end of a muscle), muscle' ◇ The same Nostr. word is used both for the root and the sinew, which is explained by their common technical functioning as ropes.

5. Food

Many of the items of the Nostratic menu have been already mentioned in different contexts, e.g. the cereals they harvested (nos. [15]–[18] and [53]). They knew how to *pound* (*moˈ]̣∇) grains and to *bake [on hot stones]* (*ʔäPHi) a sort of flat unleavened *bread* (*qUb|pⱫ∇). They ate *meat* (*ˈʕˈomśa) of several animals — mainly artiodactyls (see above nos. [5], [36]–[47], [49]) and knew how to appreciate the taste of *marrow and brain* (*ʔayṇo), *liver* (*magᵢᵢza), other *pluck* (*q̣ˈuˈȝ∇) and *soft parts of the animal's body* (*ṇ́ˈaˈḲU). They ate *eggs* (*muṅa[-t̠|d∇], ?*ʔˈaˈoˈwħ|χi) and several kinds of *fish* (*Ḳol∇, *doTgiHU, *mEn|ħi). One cannot be sure that they ate *caviar*, but certainly *hard roe* (*ṭüR∇, *ˈk̠ˈürᵢwᵢ∇ or *ˈk̠ˈurᵢwᵢE) was known to them. They ate *root-crops* (*mˈuˈrk̠∇[-ŋḲ∇] — see above [62]), *nuts* (*ḲuS∇, *L∇ᵢwᵢȝ∇ 'nuts', *buṭ∇ 'pistachio' — see [56] — [58]), *berries* (*marᵢyᵢ∇, *moᵢyᵢẑ∇ — see [59]–[60]), enjoyed the taste of *figs* (*ʔibrE [1]) and other *fruit* (??*bˈiˈr̠ˈuwˈga [55]). Their 'cuisine nostratique' included *tasty beverage* (*mayȝ̂∇ [21]) and *honey* (*madu).

[63] ***moˈ]̣∇** 'to pound, gnaw/smash into pieces' > **Indo-Eur.** *mel-, *melħ- 'to grind, pound' > Hittite mall(a)- v. mill, grind' ||| Armenian malem 'I break into pieces' || Greek μύλη 'mill' || Albanian mjell 'flour', bluanj (< *mlā-) v. 'grind' || Latin mol-ō, -ĕre v. 'grind' || Old Irish melim 'I grind' || Gothic, Old High German malan, German mahlen, Old Norse mala 'to mill', Old High German muljan 'to break into small pieces' || Lithuanian málti 'to mill' | Slavic *mel-ti 'to grind, mill' > Old

Church Slavonic **МЛѢТИ** mlěti (1 sg. pres. meljǫ), Bulgarian ˈмеля, Serbo-Croatian mlȅti / mȅljem, Slovene mléti, Czech mléti ~ mlíti, Polish mleć / miele, Old Russian **МОЛОТИ**, Russian moˈлоть / meˈлют ‖ Tocharian A malywät 'you (sg.) are pressing', Tocharian B melye 'they trample' ‖ ? Old Indian mr̥ṇā́ti 'crushes, grinds' (coalescence with Indo-Eur. *mer- 'to rub') ‖‖ **Ham.-Sem.**: Sem. *√mll 'crush, squeeze (e.g. for husking the grain)' > Middle Hebrew, Jewish Aramaic, Mandaic √mll v. 'crush, squeeze, rub ears for husking the grain', Biblical Hebrew מְלִילָה məlī́lā, Jewish Aramaic מְלִילְתָא məlīlə́t̲-ā 'Reibähren (noch milchige Ähren, deren Körner man ausreibt)', Middle Hebrew מְלִילָה məlī́lā 'ripe ear', Arabic √mll (II form) 'presser, activer' ‖‖ **Uralic** *moḷḷ∇ 'to crumble, break into pieces', 'a crumble' > proto-Lapp *mōl∇ > Norw. Lapp moallo 'crumb, little, bit, piece, morsel', moallâni- ~ mǫllâni- v. intr. 'crumble away' ‖‖‖ Samoyedic *məl∇- v. 'break' > Tundra Nenets мăлă- ~ maĺa- ⁴ мăлье- v. 'break, smash'. Taz Sölqup mala- v. 'gnaw', Tim Sölqup 1 sg. aor. malāab id., Kamassian boĺ·dəĺâm ~ buĺ·dəĺâm v. tr. 'break', Koibal блаламь 'I gnaw', Mator бальямь id. ‖‖ **Altaic** *möl∇ > Mongolic *mölʒi- (< *möl-di-) 'to gnaw into pieces' > Middle Moghol mölʒi-, Class. Mong. mölʒi-, Halha mölʒi-, Kalmuck mölǯĭ- 'to gnaw'.

[64] ***ʔäPHi** 'to bake, prepare food on hot stones' > **Ham.-Sem.**: Sem. *√ʔpy v. 'bake' > Ugaritic, Old Aramaic √ʔpy|w, Hebrew √ʔpy|w (perfect אָפָה ʔāˈpā) v. 'bake', Phoenician, Official Aramaic √ʔpy id. (and/or 'cook'), Jewish Aramaic אפי √ʔpy (pf. אַפָּא ~ אַפֵי ʔăˈpē) v. 'bake', Syriac √ʔפּ (perfect ʔeˈpā) v. 'bake, cook', Arabic مِيفًى mīfā-n 'bake-oven', Akkadian √ʔpy/w (inf. epû) v. 'bake' ‖‖‖ Chadic: West Chadic: Pero ápò v. 'bake' ‖‖ ? **Indo-Eur.**: *ʔ|HepH- (unless it is *sepH-) v. 'cook' > Armenian epʰe-m id. ‖ Greek ἔψω id. (so-present), part. ἑφθός 'baked' ‖‖ **Altaic**: Turkic *äpˀ- v. 'bake (?)' in Old Turkic äp-mäk ~ äpäk 'bread', Azeri äppäk, (dial.) äpmäk id., Volga Tatar äpäy id. ‖‖ **Drav.** *avi- v. 'be boiled, cooked' > Tamil avi id., avay v. 'cook, boil', Malayalam aviyuka v. 'boil on fire, be digested'.

[65] ***qUbᶜ̣∇** (< ***qUpᶜ̣∇**?) 'food made of ground cereals', 'flour' (> 'bread') > **Kartvelian** *qweza- 'loaf' > Old Georgian queza-y 'loaf of bread', Megrelian χozo 'oval loaf of cooked dough', χozo-ḳwari 'ceremonial cone-formed bread baked at the first Monday of Lent (with a wooden stick in it)' (Megrelian ḳwari is 'small loaf of bread') ‖ **Ham.–Sem.:** Sem. *χubz- 'bread' > Arabic χubz- 'bread', χubzat- 'a bread baked in ashes', √ χbz (past χabaza, present-future -χbiz-) v. 'make bread', Eastern Jibbali E χɔ̄z v. 'bake' (*-b- > zero is regular), Mehri, Harsusi √ χbz id., Ge'ez √ χbz id. 'bake', χabz 'bread', χabast (pl. χabāwaz) 'bread' ‖? **Altaic:** Tungusic *upa 'flour; flat bread' > Solon uʁo̰: 'bread', Negidal, Naikhin Nanay opa, Ude, Bikin Nanay opa ~ ufa, Kur-Urmi Nanay ofa, Ude ufa, Ulcha upa 'flour', Orochi upa id., 'flat bread', Orok upa 'flour, flat bread, bread', Class. Manchu ufa 'wheat-flour, rice-flour', Sibe Manchu ʔufa· 'flour, meal', Jurchen ufa 'flour' ¶¶ The Tungusic cognate is valid only if there is a way of explaining the loss of *ᶜ̣ in Tungusic (or the change *-bᶜ̣- > Tungusic *-p).

[66] ***⌈ʔ⌉omśa** 'meat' > **Uralic** *omśa 'flesh, meat' > proto-Lappish *ɔ́ńćē 'flesh' > Norw. Lapp oaჳ'ჳe, Kildin Lapp v̆u̯ʒ́ń:č̌, Ter Lapp v̆ɨʒ́ń:če id. ‖‖ Samoyedic *ъmså̄ 'meat' > Tundra Nenets ӈамза, Obdorsk dial. ŋamcā̄, Forest Nenets ŋams·ā̄a, Nganasan ŋɜmsu, Somatu Enets uд́a, Bay Nenets ossa 'meat', Taigi anca 'flesh\meat', Mator anca id., 'body', Taz Sölqup apsɨ 'food' ‖ **Ham.–Sem.:** ? Sem.: Arabic ʔāmiṣ-, ʔamīṣ- 'marinaded raw meat; veal jelly' ¶ The emphatization of the final consonant is not yet clear ‖‖ Egyptian sms 'piece of beef' (Illich-Svitych: partial reduplication of *ɜms?) ‖ **Indo–Eur.** *mēms- 'meat' (< **ʔmēms- [reduplicated stem]) > Old Indian mā́ṁ'sa-, 'mās 'meat' ⁞ Armenian mis id. ⁞ Albanian (dial.) mish id. ⁞ Gothic mimz id. ⁞ Prussian mensā, Low Lithuanian meisa (Fraenkel: < *mensā), Latvian mìesa ⁞ Slavic *mę̨so > Old Church Slavonic мѧсо mę̨so, Serbo-Croatian mȇso, Polish mięso, Russian 'мясо id. ⁞ Latin membrum 'limb' (< *mēms-ro-) ⁞ Old Irish mír 'piece' (← 'piece of meat') (< *mēms-ro-) ¶ The loss of the laryngeal *ʔ in the initial clusters [*ʔ + consonant] is regular (e.g., *ʔs- > *s in *es-ti 'est' —*s-onti 'sunt').

[67] ***gʹuʹʒ∇** 'intestines, pluck (as food)' > **Kartvelian** *ɢwiȝḻ- 'liver' > Old Georgian ɣwiȝl-, Georgian ɣviȝl-, Megrelian *ɢvižil- ↦ Georgian ɢvižil- 'of dark-violet colour', Megrelian i-ɢvižin-an-s 'has unhealthy yellow complexion' ('выглядит желто, болезненно'), Svan ɢwiže, ɢuže 'liver' **|| Indo-European** *kews-/kūs- ≈ 'intestines, abdomen' > Old Indian koṣṭha- 'abdomen' ‖ Greek κύστις, -εως 'bladder' ‖ Welsh cwthr 'anus, rectum' (< kusdʰro-) ‖ Slavic *kɨš-ьka 'gut' > Russian киш'ка, Ukrainian 'кишка, Polish kiszka 'gut' **|| Altaic:** Tungusic *ˌxˌuja- > Okhotsk Lamut uja- v. 'disembowel (a bear)', ujamɕɪn, Ola Lamut ujimɕɪn, Negidal uddo-nɪn 'pluck of a bear' **||** ?φ **Dravidian** *kuṭ- 'intestines' > Tamil kuṭar, kuṭal 'bowels, intestines, entrails', Malayalam kuṭar, kuṭal 'bowels', Kota kor̃, Toda kwɨr̃ 'small intestine', Gondi kuṇḍalī 'a stomach of ruminants'.

[68] ***ʔayŋo** 'marrow, brain, soft fat of animals' ('to smear, anoint') > ?? **Indo-Eur.:** Narrow Indo-European *oŋgʷ- 'to smear', *oŋgʷ-en-~*ŋgʷ-en- 'fat, grease' > Old Indian añj-, a'nakti (3 pl. añ'janti, part. pass. ak'ta) v. 'smear, anoint', 'ājyam 'melted or clarified butter (used for oblations, for pouring into the holy fire at the sacrifice, and for anointing anything sacrificed or offered)' (< ā + ajya < *ŋgʷyo-) ‖ Armenian aucanem 'I smear' ‖ Latin unguō / unctus v. 'smear', Umbrian umtu 'unguito' ‖ Prussian anctan, ancte 'butter' **|| Ham.-Sem.:** Semitic: Ge'ez ʔangʷaʕ 'marrow, the soft fat of animals', Tigre ʔɜngɜʕo, Tigray ʔangʷɜʕ, Amharic angʷa 'marrow' ‖‖ ? Cushitic *ħangʷl- 'brain' > East Cushitic *ħangul- 'brain' > Saho ħangal, pl. ħangul id., Afar ħángal 'brains', Borana Oromo ɛngu~ɛngō id., as well as probably Dahalo ʕàni 'head' ┊ Agaw ↦ Amharic angol 'brains' and Tigre ħangal ħangɛl (pl. ħanāgal ħanagɜl) ↦ Bilin hangʷel (pl. hanāgʷəl) 'brains'; Awngi angʷal id. may be either a back borrowing from Ethiosemitic or an inherited Cushitic word ┊ ? Cushitic ↦ Mbugu angálo ‖‖ Omotic: East Ometo: Kachama ɜnkā 'head' ‖‖ Central Chadic: Chibak ʔángàrà, Margi angada 'brain', Mboku āŋga, Bana yáŋga 'head' **|| Uralic** *ayŋe (or *ayŋo, as proposed by Collinder) > Finnish aivo(t) 'brain, temple, temporal (bone)', Estonian aju 'brain', proto-Lappish *vōjŋɜ 'brain' > Norw. Lapp vuoiŋâŝ-: pl. vuoi'gŋâŝâk, Lule-Lapp vuoiŋam ~

vuoiʼŋam ⫶ proto-Mordvin *oyʁə > Moksha-Mordvin уй uy ʼmarrow, brain' ⫶⫶? Hungarian agy ʼbrain, marrow' ‖ ? **Altaic**: Turkic *äŋ ʼcheek' > Old Turkic äŋ id., Old Osman eŋ id., Azeri äŋg ʼthe sides of the lower jaw', etc.

[69] ***magˎiˎza** ʼliver' > **Ham.-Sem.**: Egyptian myz.t ʼliver (?)' > Demotic Egyptian mys ʼliver' > Old Coptic мᴀоус maus id. ‖‖ North Omotic *mayz- ʼliver' > Bench máy ʼheart, liver', She may ʼliver', Chara mayya, Badditu, Kachama mayye, Gidicho māyye, Ganjula, Zayse, Zergulla maye, Male māyzi, mayz, Basketo māyзz, Doka mayz ʼliver' ¶¶ The origin of *y instead of the expected guttural is not clear ‖ **Uralic** *maksa ʼliver' > Finnish maksa, Estonian maks ⫶ proto-Lappish *mōksē > South. Lapp müöksie, Ume-Lapp müeksē, Vefsen Lapp müökʼsi ⫶ Erzya-Mordvin makso, Moksha-Mordvin макса maksa ⫶ proto-Cheremis *moks > Cheremis: Lowland and Highland Cheremis мокш mokš, Malmïzh Cheremis moks ⫶ proto-Permian *musk- > Ziryene mus / musk-, Votyak мус mus ⫶⫶ proto-Ob-Ugric *mᵻ̄ʁəθ > proto-Vogul *mᵻ̄yət / māyt- > Tavda Vogul mayət, Northern Vogul māyət; proto-Ostyak *muʁəɬ > Vakh Ostyak muʁəl, etc.⫶ Hungarian máj id. ‖‖ Samoyedic *mᵻtъ id. > Tundra Nenets мыд, Obdorsk dial. mᵻ̄δ ≁ mūδ, Forest Nenets mᵻ̄tʼ; Nganasan ʼmitə; Enets muro ≁ mudo; Taz Sölqup mᵻ̄tᵻ, Tïm Sölqup mᵻ̈ːdˍ; Kamassian mᵻtʼ, Koibal мёттъ.

[70] ***ń⌐aˈʠU** ʼsoft parts of the animal's body (liver, marrow, suet)' > **Ham.-Sem.**: Sem. *√nᵏẙy/w > Arabic niᵏẙy- ʼmarrow', naqw- ʼbone of the arm, one full of marrow', √nqw/y v. ʼextract marow from a bone' ‖ **Indo-Eur.** *yekʷ-r̥(t-) / gen. *yekʷ-ʼn-es ʼliver' > Old Indian ʼyakr̥t, gen. yakʼnaḥ, Persian ǯigar ⫶⫶ Greek ἧπαρ / -ατος ⫶⫶ Latin iecur / iecinoris ⫶⫶ Baltic *yeknā > Lithuanian (j)ẽknos, (j)ãknos, Old Lith. jeknas, Latvian pl. aknas, (dial.) je̦knas, Prussian iagno ‖ **Uralic**: Finno-Ugric *°ńokɪ̯u̯|w∇(-ẑ∇) > Ob-Ugric *ńō̆ʁəẑ ʼmeat' > proto-Vogul *ńã̄yəĺ- > Tavda Vogul ńäwĺ, Sosva Vogul ńɔ̄wĺ, etc.; proto-Ostyak *ńoyᵻ id. > Vakh Ostyak ńoyᵻ, etc. ‖ **Altaic**: Turkic *yakrᵻ ʼsuet, fat (of an animal)' > Old Turkic yaqrᵻ ʼfat, suet' (meaning influenced by Turkic yāy ʼfat'), Old Uighur yaqrᵻ ašlᵻyˍlar ʼfat\suet eaters'.

[71] *muṅa(-t|dᐁ) 'egg' > **Uralic** *muṅa 'egg, testicle' > Finnish, Estonian muna id. ┊ proto-Lappish *monē > Norw. Lapp mânne 'egg' ┊ Erzya & Moksha Mordvin mona 'testicle' ┊ Highland Cheremis мыны mənə, Lowland Cheremis muno 'egg', Birsk Cheremis muno id., 'testicle' ┊┊ Ob-Ugric *mōṅ 'testicle' > proto-Vogul *mān id. > Tavda & Lower Lozva Vogul man id.; proto-Ostyak *moṅ 'penis' > Vakh Ostyak moṅ id. ┊ Hungarian (dial.) mony 'egg, testicle' ┊┊┊ Samoyedic *mьnå 'egg' > Nganasan mɜnu, Enets mona, Kamassian mun·aǐ ~ mun·uǐ 'egg', Koibal муны 'egg', Taz Sölqup manɨ 'penis' ┃┃ **Ham.-Sem.:** Chadic: possibly Musgu muŋ 'testicles' (after Rohlf's record of 1856), ? Girvidig Musgu mōhom id. ┃┃ **Drav.** *muṇṭ- ~ *muṭṭ- 'egg' > Tamil muṇṭai ~ muṭṭai 'egg', Malayalam muṭṭa, moṭṭa, Kota moṭ, Toda muṭy, Kannada, Tulu moṭṭe id., Kodagu muṭṭe id., 'testis' ┃┃ **Indo-Eur.** *°mondₗʰ₁- > Slavic *mǫd-o 'testicle' (dual *mǫd-ě) > Church Slavonic мѫдо mǫdo, Bulgarian мѫ'до (new orthography мъдо), Serbo-Croatian múdo, Slovene módo, Old Czech múd, Czech moud, Old Polish mądo, mędo, Polish arch. mądo, Old Russian мѹдо mudo (dual мѹдѣ mudě), Russian (dial.) му'до (old dual му'де), Ukrainian 'мудо id.

[72] ? *ʔˤal̩oˀħ|χi or *ʔuħ|χi 'egg' (or 'white of egg') > **Ham.-Sem.:** Sem. *°ʔawħ- > Syro-Lebanese Arabic روʔawħ- ~ حاʔāħ- 'white of egg' ┃┃ **Indo-Eur.:** Narrow IE *oṷ(y)o- 'egg' > Greek: Attic ᾠόν (< *ōṷy-om), Aeolic ὤϊον, Doric ὤεον 'egg' ┊┊ ? Old Persian xāya 'egg', ? Avestan ap-āvaya- 'entmannt' (if < *apa-āvaya- 'without testicles') ┊┊ Welsh wy, Old Cornish uy 'egg' ┊┊ Armenian ʒu (gen. ʒuoy) 'egg' ┊┊ Latin ōvum ┊┊ proto-Germanic *ayya-m > Gothic *addya (reconstructible from Crimean Gothic ada), Old High German ei, German Ei, Old Scandinavian egg (whence English egg) ┊┊ Slavic *aje id., (diminutive) *ajьce id. > Serbo-Croatian jáje, Low Lusatian jajo, Polish jaje, Ukrainian (dial.) айо 'egg'; Old Church Slavonic анцє ajьce, Bulgarian яй'це, (dial.) ай'це, Polish (arch. and dial.) jajce, jajco, Old Russian ганцє jaice id., Serbo-Croatian jájce id. (dimin.), Slovene jájce, Czech vejce, Russian яй'цо 'egg, testiculum' ┃┃ **Altaic:** Old Japanese u 'egg' (Starostin, pers. comm., 1976).

[73] *Ḳolⱴ '(large) fish' > **Ham.-Sem.**: East Cushitic: Afar kúllum, Somali kallūn 'fish', kallūm- 'to catch fish' ||| Chadic: Hausa kúlmā́ '(a kind of) large fish' ||| ? Sem.: Jibbali (according to B. Thomas) kāl, Mehri (Thomas) kɛll 'whale' || **Uralic** *kala 'fish' > Finnish, Estonian kala ⁞ proto-Lappish *kōlē > Norw. Lapp guolle ⁞ Erzya & Moksha Mordvin kal ⁞ Cheremis kol ⁞⁞ Ob-Ugric *kūl > proto-Vogul *kūl > Tavda Vogul kōl, Northern Vogul χūl; proto-Ostyak *kul > Vakh Ostyak kul, etc. ⁞ Hungarian hal ||| Samoyedic *kålä > Tundra Nenets халя, Obdorsk dial. χaíˑe, Forest Nenets kāⱡ:ə̄ə̃̄, Nganasan kolɨ, Somatu Enets kaɽe, Bay Enets kare, Taz Sölqup qзlɨ, Kamassian kʼōⱡ̇ä, Koibal кола, Mator келе || **Altaic** *kʼolⱴ 'fish' > Mong. *qoli-sun 'fish-skin' > Class. Mong. qolisun, Halha холис(он) ||| Tungusic *χol-sa 'fish' > Ewenki ollo, Lamut olrъ, Negidal olo, Orochi okto, Ude olоʰo, Ulcha χolto(n-), Nanay χolto |||| [2] (a loanword?) Mong. *qalimu 'whale' > Class. Mong. qalimu, Halha халим 'whale'; Mong. Ꙙ (possibly) Tungusic *kalima 'whale' > Ewenki kalim 'whale', Ayan Ewenki kalim id., 'ходовая рыба (shoals of fish moving into the rivers for spawning and caught by fishers)', Lamut qalɪm, Negidal kalɪm, Orochi kalima ~ kālma, Ude kalima, Ulcha qalma, Orok, Nanay qalɪma, Class. Manchu qalimu 'whale' || **IE** *kʷolal- '(a kind of) large fish' > Khotan Saka, Young Avestan kara, Sogdian krw kpy 'a monster fish' ⁞⁞ Germanic *χʷalaz ~ *χʷaliz 'whale' > Old Norse hvalr, Anglo-Saxon hwæl, English whale, Old High German wal, German Walfisch; Old High German *hʷalis > Middle High German wẹls > German Wels 'sheat-fish, Silurus', Germanic *χʷalirōn id. > Old High German hwelira ⁞⁞ Prussian kalis 'sheat-fish' ⁞⁞⁞ ?? A possible compound *Hs-kʷal- may be represented by Greek [Hesychius] ἄσπαλος 'fish' and Latin squalus '(a kind of) large fish, Meersaugfisch?' || **Drav.** *koll- '(a kind of) fish' > Malayalam kolli, Tulu koleji id. ◇ The vowel *a (for the expected *o) in Uralic is obscure.

[74] *doTgiHU 'fish' > **Indo-Eur.**: NaIE *dʰĝʰū- 'fish' > Greek ἰχθῦς (< *ĝʰdʰū- — metathesis from *dʰĝʰū-) ⁞⁞ Lithuanian žuvìs, Latvian zivs, (dial.) zuvs, with a *k-suffix: Prussian suckis, acc. pl. suckans ⁞⁞ Armenian ʒukn ¶ According to many scholars, the initial ἰ- in ἰχθῦς is of

prostetic origin; according to Frisk, Armenian -kɴ is a suffix || **Ham.-Sem.**: Sem. *ˈdag- or *daˈwag- 'fish' > Hebrew דָּג ˈdāg, Ugaritic dg 'fish'; Middle Hebrew -dūg- v. 'fish', Biblical Hebrew דָּוִג dawˈwāg 'fisher' || **Uralic** *totke 'a fish of the genus *Cyprinus*' > Estonian tõtkes 'Schleie (линь), *Cyprinus tinca*', Finnish totke (in the toponym Totkijärvi) ¦ Erzya Mordvin tutko, Moksha Mordvin тутка tutkə '*Cyprinus tinca*' ¦ Highland Cheremis tatъ, Malmyzh Cheremis toto id. ¦¦ Tavda Vogul tåχt id. ⟂ takt-kōl id. or '*Tinca vulgaris*' ¦ Hungarian tat-hal 'a worthless fish; *Cyprinus tinca*, *Tinca vulgaris*' ||| Samoyedic: Taz Sölqup tutɬ '*Cyprinus carassius*', Turukhan Sölqup tūtɬ, Ketj Sölqup tutto, Tïm Sölqup tutä id. ||**Altaic** *dóg|ki 'fish' > Tungusic *ɜog|yi 'a species of fish (*Salmo lenoc* or sim.)' > Nanay ǯoɩ, Ude ǯüi-so, Negidal joyo '*Salmo lenoc*', Negidal joyolan 'golyan (sp. of fish)' ||| Mong. *ɜiga-sun 'fish' > Middle Mongolian ǯigasun, Class. Mong. ɜigasun, Halha-Mong. ɜagas, Kalmuck zaɣɐ̆sŋ, Dongxiang ǯaɣasun, Dagur ǯause, Shira-Yugur ǯaɣasən, Monguor ǯ̣i̯aɡ̣asɜ ||| proto-Japanese *(d)íwuá 'fish' > Old Japanese iwo, Japanese dialects: Tokyo ùo, Kagoshima íwo, Ryukyu dialects: Shuri íyu, Nakasuji ʔyú, Hateruma yú, Yonakuni ìyú.

[75] ***mEn|ňi** '(a kind of) fish' > **Indo–Eur.** *mₒni- '(a kind of) fish' > Greek μαίνη 'a small sea-fish, which, like our herring, was salted' (↦ Latin maena id.) ⇥ μαινίς 'sprat' ¦¦ Slavic *mьnь 'burbot, Lota lota' > Serbo-Croatian (dial.) mãnj, Czech meň, Old Russian мєнь menь, Russian мень id. ¦ ?? Baltic (der.): Lithuanian ménkė 'cod' (unless a fem. form of the adj. meñkas 'poor, small'), Latvian męñca, meñce 'cod' ¦¦ ? Gmc (der.): Old High German muniwa, Anglo-Saxon myne > English minnow '*Phoxinus*' || **Drav.** *mīɳₒ 'fish' > Tamil mīṉ, Malayalam, Kannada mīn, Kota, Toda, Gadba, Gondi, Konda mīn, Kodagu miˑnī, Tulu mīnъ, Telugu mīnu, Parji mīni, Pengo, Manda min, Kui, Kuwi mīnu, Malto mínu; Drav. ↦ Old Indian mīna- id.|| ?? **Uralic**: Finno-Ugric *mäNᐁ > Skolt Lapp: Paatsjöki dial. mānńiˈ, Suonikylä dial. mānˊeˈk '*Coregonus, lavaretus* (big white-fish)'.

[76] *p│p̣ay∇ '(a kind of) fish' > ? **Indo-Eur.** *peysk(o)-/*pisk- 'fish' > Latin piscis ┊┊ Gothic fisks, Old Norse fiskr, Old High German, Anglo-Saxon fisc, German Fisch, English fish ┊┊ Old Irish īasc (< *peyskos) (/ gen. ēisc) 'fish' ┊┊ Slavic *pisk-arjь~*pisk-orjь > Russian пи'скарь (modern orthography: пескарь) 'gudgeon', Serbo-Croatian pȉskor 'muræna', Slovene piškur 'lampern (*Lampetra*)', Czech piskoř, Polish piskorz, High Lusatian piskor 'loach (*Misgurnus*)'┊┊? **Uralic** *pay∇ '(a species of) fish' > ? Votyak paya 'bream (*Abramis*)' ┊┊ ? Tavda Vogul pail, payil 'Carassius' ┊┊┊ ? Samoyedic: Nen paja, paiha 'Salmo peljet (a fish)', Tundra Nenets pāŋxā 'сырок, пелядь (a kind of *Salmonidae*)', Bay Enets faeha 'Salmo peljet', Nganasan faʔuka 'Muksun' (a fish) ┊┊ **Drav.** *payy-'(a kind of) fish' > Malayalam payyatti 'a fish', Tulu paịyyæ 'a kind of fish'.

[77] *ṭüR∇ 'hard-roe' > **Uralic** *°tʳüʳr∇ > Samoyedic *tirämä ~ *türämä 'hard-roe' > Tundra Nenets тиребя, Forest Nenets tiḓ̣ḓ̣īḿḿе̂е̂, Nganasan ti'rimi, čirimi, Somatu Enets tiřê, Bay Enets tiřê, čirɛ, čiři, Taz Sölqup tɨr, Tïm Sölqup tē'reʹḇ, Kamassian tʹűʹmɛ, Koibal турмэ, Taigi türmjä, Mator türma, турмэ, Karagas d̯űrmjä ┊┊ **Altaic** *tʹüRʹiʹ 'hard-roe' > Mong. *türi-sün > Class. Mong. türi-sün, Halha турс, Kalmuck türsŋ, Buryat түрьhэ(н) id. ┊┊┊ Tungusic *tiḷure-kse id. > Ewenki tirз̄-ksз ᶁ tirз̄kš̌з ᶁ tirз̄hз, Solon, Ulcha tursз, ? Class. Manchu cerguwe ~ cerhuwe.

[78] *ʳkʹ'ür̯w̯∇ or *ʳkʹ'ur̯w̯E 'hard roe, spawn' > **Indo-Eur.** *krek-'fish eggs, frog spawn' > Old Norse hrogn, Old High German (h)rogan, rogen, German Rogen, Middle English row, English roe ┊┊ Lithuanian kurkulaĩ, Latvian kur̂kulis 'frog spawn' ┊┊ Slavic *krekъ ~ *krěkъ ~ *krękъ 'frog spawn' > Slovene krék, žabo-kréčina, krāk, Old Polish krzek, Russian (dial.) крек, крёк, кряк id.; in Slavic there is contamination with the onomatopoetic imitation of croaking, whence the unexpected variations in the form┊┊ **Altaic**: Azeri kürü 'hard-roe' ┊┊┊ Tungusic *xur̯be 'to spawn' > Ewenki irbз 'spawning. spawn', Ulcha xulbi-, Nanay xurbз- ᶁ xurbu- v. 'spawn' ┊┊ ? **Kartv.**: Georgian kvirita 'hard roe,

soft roe', kⱴiriti 'spawn of fish/frogs' ¶ The lack of glottality in the initial consonant is irregular.

[79] **madu** 'honey' > **Indo-Eur.** *medʰu- 'honey' > Old Indian madhu- 'honey, mead', Avestan maδu 'wine made of berries' ¦¦ Greek μέϑυ 'wine' ¦¦ Old Irish mid (gen. medo), Cornish medd, Breton mez 'mead' ¦¦ Old Norse mjǫδr, Anglo-Saxon meodo, English mead, Old High German metu, German Met 'mead' ¦¦ Lithuanian medùs, Prussian meddo 'honey', Latvian mẹdus id., 'mead' ¦ Slavic *medъ 'honey' > Old Church Slavonic medъ, Bulgarian, Ukrainian мед, Czech, Slovak med id., Serbo-Croatian mêd, Polish miód, R мёд id., 'mead'; the ancient root-final *u is preserved as *ⱴ in derived and compound words (as Church Slavonic medⱴъnъ, Russian мед'вяный 'made of honey', Slavic *medⱴĕdь 'bear' ['honey-eater'], etc.) ¦¦ Tocharian B mit 'honey' **||** **Drav.** *maṭṭ° 'honey, sweetness' > Tamil maṭṭu 'honey, toddy, sweet juice', Malayalam maṭu 'sweetness, honey', maṭṭu 'nectar', Tulu miṭṭi 'sweetness' **||** **Ham.-Sem.**: East Chadic: Mokilko máddé 'bee, honey' ||| Omotic *mat/ṭ/C̣- 'bee, honey' > Shinasha maċ'ċa 'honey', Kaffa mā̄ṭo 'bee', Mocha maṭi 'bee, wasp', Anfilla mač̣č̣o ~ maṣṣo, Zayse, Dache maċc̣ 'bee', Gamu macci, Wolayta matta, Chara meca id.

6. Technological activities

The information provided by the language is both rich and very poor. On one hand, we know two dozens of words for 'cutting', but on the other hand, we have no idea about the original semantic difference between them. The precious information about different ways, directions and aims of cutting has not been preserved by the language. There are many words for 'bending', 'twisting', 'boring/drilling', 'barking/flaying/peeling', 'rubbing', 'scratching', etc., but the specific meaning of each one has been lost. Therefore I do not see any use of quoting the dictionary entries for all of those words (which would have taken as much space as the rest of this book).

What is more important is the general impression corcerning the industrial activities of the proto-Nostratic epoch. From popular literature on the 'Stone Age' archæology the unprofessional reader (like myself) may draw a conclusion that the main materials of industry of the palaeolithic,

mesolithic and neolithic were **stones**. But in the light of the linguistic data the situation looks different. Alongside with *flints* (*č̣ʿüʾr▽, ?*bu𝖱▽) and other *stones* (*ti‖e,ʔa,ʾo, *kiw,▽,ħE), no less important were other materials:

(a) *wood* (*boruꟼ‖ɣ▽ 'trunk', 'log', *ç̇U]▽ 'stalk, stick', *ḳ̣ožꟼ▽ 'tree trunk', *kañ▽(-b▽) 'stalk, trunk', 'log'), *poles* (*žu𝖱▽ 'pole, long piece of wood')

(b) *rods* (see above *ḳ̣ad▽ 'to wicker, wattle', *ḳ̣ad▽-L▽ 'wattle-fence'[22]),

(c) *sinew, tendons* (*ƺ̂irɣu‖ü, cf. above *ꟼ‖ɣaŕḲ̣ʿüʾ [25], *yaŋ,y,▽ [26], *ńoɣ‖ꟼ1E [28]),

(d) *thorns* (*ʔeẑekU 'thorn, hook'),

(e) *teeth, claws* used as *hooks* (*ḳ̣ʿaʾk,w,▽),

(f) *bark* (*toŕ▽, *Ḳ̣aʾpꟼ‖ꟼʾE, *ḳ̣ayer▽), *leather and hides* (*to,w,ga, *tal,U,ya and others, as well as words for *skin or bark,* such as *Ḳ̣aʾüʾ, *ḳ̣oRup̣▽ and *Ḳ̣oẑ▽). There is a word for *piece of leather, used especially as footwear* (*Ḳ̣▽R▽Hp̣‖p̣▽).

There is a word denoting a *sharp piercing tool* (*p̣iχ‖ɣyA) without special reference to its material (bone, wood, stone).

[80] *č̣ʿüʾr▽ 'flint-stone, knife' (coalesced in some languages with *čar▽ 'to cut') > **Ham.–Sem.**: Sem. *ʾθurar- ~ *ʾθir,a,r- > Arabic ظِرّ θirr-, ظُرَر θurar- 'sharp stone that can cut as a knife', Akkadian ṣurru(m) 'obsidian, flint-stone', Hebrew צֹר חֶרֶב çor ħɛrɛb 'blade of a sword' (ħɛrɛb 'sword') ||| Coptic: ⲭⲱⲣ ӡōr, ⲭⲉⲣ- ӡer- 'to sharpen, whet' ||| ? Berber *z̧▽rū/ā 'stone, rock'> Kabyle a-z̧ru 'stone (material); a stone, rock', Ahaggar Twareg a-z̧əru 'muraille rocheuse', Tamazight a-z̧ru (pl. i-z̧ra) 'rock, large stone', ti-z̧ra 'small stone'; in Berber the root coalesced with the cognate of Sem. *θurr- 'rock' (unless the latter belongs to the etymon in question, too) ||| Chadic: West Chadic: Hausa c̣ū̀rà 'handleless knife or sword' ⫶ Central Chadic: Gude č̣ír̀à, Fali of Muchella čʊrʋ, Fali of Bwagira č̣ɨrʊn 'hoe'|| **Altaic:** Tungusic *cʊru-,k,a(n-) 'knife' > Solon š̌irʋxã̀: 'knife', Ulcha čʊrɜ(n-), čurʊn, Nanay čʊ̄ruǯ ⪦ čiurɜ̃ 'knife used by women in carving ornaments' || **Drav.** *cɪr̠[r]añ 'small chisel' > Kannada cīraṇa, cīrṇa, jīrṇa 'a small chisel, esp. used in cutting metals', Telugu cīraṇamu 'a small chisel'.

[81] ? *bu𝖱▽ 'flint' (> 'to cut\carve with a flint') > **Ham.–Sem.**: Cushitic: Beja ber'rawe 'flint' ||| Sem. *°√bry > Arabic √bry (past بَرَى barā, present-future -briy-) 'cut', بَرَاة barāt- 'a knife for cutting\trimming

wood\arrows' || **Altaic:** Tungusic *bu̯r∇ 'flint' > Ewenki buru, Solon boro, Lamut bur, Orochi bu, burakta, Ude bū, Ulcha, Orok buraqta, Nanay boraqta 'flint', Negidal burokta 'amber' || ??? **Indo-Eur.** *bʰer- 'mit einem scharfen Werkzeug bearbeiten, ritzen, schneiden' > Persian bur(r)īdan 'to cut', Avestan tiži-bāra- 'sharp-edged' (of a knife, etc.) ¦¦ Armenian bah 'spade', gen. -i (< *bʰr̥-ti-) ¦¦ ?? Middle Irish bern, berna 'Klaft, Schlitz' ¦¦ Slavic *borna 'harrow' > Bulgarian бра'на, Serbo-Croatian (dial.) brȁna, Slovene brána, Czech pl. brány, Russian боро'на 'harrow', Serbo-Croatian brána 'a kind of harrow'.

[82] *ti̯e̤ʔa̤ɪ́o (or *tṳ̈ʔa̤ɪ́∇) 'stone, heap of stones' > **Altaic** *ti̯o̤ɪa~*ti̯a̤ɪa 'stone' > Hunnic (O. Pritsak's reconstruction) *tiāl 'stone' ||| Turkic *ti̯ā́ɪ id. > Chuvash čul ≙ čol 'id.', Narrow Turkic *tā̈š > Old Turkic tā̈š, Turkish taş̣ 'stone', Içel Turkish daşag̷ɪr 'stony land', Azeri, Salar daš, Türkmen dā̈š, Tuva даш t̓aš, Yakut tā̈s 'stone' ||| Mongolic *cilagun 'stone' > Middle Mongolian čilaɣun, Class. Mong. cilagun, Halha culū, Kalmuck čolūn, Dagur čolō ¶ The voicelessness of the initial consonant *c- (for the expected voiced *ɜ- < A *ti̯-) still defies explanation ||| Tungusic *ɜola 'stone' > Ewenki, Solon, Negidal, Orok jolo, Lamut jol, Orochi, Ude, Nanay, Ulcha žolo 'stone' ||| Korean: Middle Korean tōr(h), Phyöngyang and Seoul Korean tol, Kyŏngsando dial. tôl, Hamgyŏngdo dial. tól ||| proto-Japanese (according to Starostin) *i̯d̯i̯ísì 'stone' > Old Japanese isagwo 'sand', Japanese: Tokyo dial. iší, Kagoshima dial. íšɩ, Hateruma (Ryukyu Islands) ìšì 'stone' || **Ham.-Sem.:** Sem. *till- (~**tīl-~?**tall-) 'mound, heap of stones' > Hebrew tel, till- 'mound, hill, heap of stones', Jewish Aramaic tel, till-ā 'heap of stones, mound', Syriac tɛll-ā 'mound, hill, heap', Arabic tall- 'hill, heap', Akkadian till-, tīl- 'mound' || **Kartv.** *°ta̤ɪ̣l- > Georgian ṭal-i 'flint, fragment of a tooth' || **Drav.** *call- 'broken stone, (stone) chip' > Tamil calli 'stone chips, pieces of glass', Malayalam, Tulu calli 'chip, potsherd', Kannada jalli 'broken stone\metal', Tulu jalli 'broken stone', Telugu jalli 'road metal, broken stone', Parji ɜalub 'stone chips' ◇ The formula *ti̯e̤ʔa̤ɪ́o reflects two alternative hypotheses: 1) the reconstruction *ti̯eʔaɪo presupposes contraction of a Nostr. disyllable in Altaic: Nostr. *ti̯eʔaɪo > Altaic *ti̯ā́ɪ∇

~ *t̪ōi∇, 2) the reconstruction *ti̯eio presupposes a 'vowel breaking': *ti̯eio > Altaic *t̪ōiˈaˈ (> *t̪ōia ~*t̪āi∇). The first alternative has an advantage: it accounts for the Kartv. and Drav. reflexes (Kartv. glottalized *t̪-<*t̪ʔ-< *ti̯ʔ-, Drav. *ɒa-<*ti̯a-<*ti̯ʔa-, the vowel *-a- both in Drav. and Kartv.) and for the length of the Altaic vowel (due to contraction of a disyllable), while the second alternative hypothesis presupposes rejection of both the Kartv. and Drav. roots and fails to account for the Altaic vowel length.

[83] ***kiwᵢ∇ᵢħE** 'stone' > **Ham.–Sem.**: Chadic *√kw (or *kʷ∇ʔ) 'stone' > Central Chadic: Matakam kʷaʔ, Mafa kʷâ ⋮ Buduma kằú, Affade kɑo ⋮ Nzangi kʷâ̰a̰ ||| ? Sem.: Ge'ez kʷakʷăħ (pl. kawākaħ) 'stone, rock, stony ground', Arabic kāħ-, kīħ- 'rugged face of a mountain, side of a valley consisting of the hardest and roughest stone' (in the prehistory of Arabic *∇w∇ > ∇) **|| Kartv.** *kwa- 'stone' > Old Georgian kva-y, Georgian kva, Megrelian, Laz kua 'stone'**|| Uralic:** Finno-Ugric *kiwe 'stone' > Finnish, Estonian kivi ⋮ Erzya & Moksha Mordvin кев ḱev ⋮ Cheremis kü ꝶ küy ⋮ Permian *ki 'stone, millstone' > Votyak kö kɜ, Southwestern Votyak kô 'millstone', Ziryene iz-ki id. ⋮⋮ Ob-Ugric *kǟw 'stone' > proto-Vogul *kǟw > Konda & Pelïmka Vogul käw, etc.; proto-Ostyak *köɣ 'stone' > Vakh Ostyak köɣ, etc. ⋮ Hungarian kő (accus. követ) id.

[84] ***boruʕ|ɣ∇** 'trunk' ('log') > **Ham.–Sem.**: Sem. *burʕ-~*burāʕ- 'reed' > Ge'ez barʕ 'reed', Akkadian burû 'reed mat' (> Syriac būrā id.) **|| Indo-Eur.** *bʰruH-/~bʰreHw- 'log' > Old Norse brū 'bridge', bryggja 'landing-place, embankment', Old High German brucca, Anglo-Saxon brycʒ 'bridge', Bavarian German Bruck 'Bretterbank am Ofen', Swiss German brügi 'Holzgerüst', German Brücke, English bridge ⋮⋮ Gaulish brīva 'bridge' (< *bʰrēwa) ⋮⋮ proto-Slavic *brьvь, *brъvь 'trunk, log' > Bulgarian (dial.) бръв ~ бръф 'a tree used as a bridge over a stream\river; footbridge', Serbo-Croatian br̂v 'footbridge, log used as a footbridge', Slovene br̂v 'footbridge, gangway, gangplank', Old Russian, Church Slavonic бръвь, бръвь, бервь 'raft, embankment', proto-Slavic derived stem *brьvьno ~ *brъvьnъ ~ *brьvьna 'log' > Old Church Slavonic

БРЪВЬNO, Bulgarian бръв'но, 'бързвен, Russian брев'но id. || **Uralic**: Finno-Ugric *pora 'logs used as a raft or a bridge, a board' > proto-Lappish *pōrēvē > Norw. Lapp boarʹre 'logs placed together to form a primitive bridge over a river or lake; a board used as a floating raft', Lule Lapp parrē 'raft', Ter Lapp poarrew 'board (Brett)' ¦ Permian *pur 'raft, ferry' > Votyak pur id., Ziryene pur 'raft', Ziryene (dial.) pur 'raft, ferry' ‖ Ob-Ugric *pōrā 'raft' > proto-Vogul *pārā > Tavda Vogul parā, Sosva Vogul pōra id.; proto-Ostyak *păra > Vasyugan Ostyak păra id., etc. || ?? **Drav.** *paru‖inc- 'hilt of a sword' > Tamil pariṅcu, Malayalam priṅṅu, Telugu parūʒu id.

[85] ? *ćUʔ∇ 'stalk, stick' > **Kartv.** *ċwel- 'stalks, straw' ('staff') > Old Georgian ċwel-i 'stalk(s)', Georgian ċvel-i 'chaff', Megrelian ċu- id., Laz ċu- 'straw (stalks)', o-ċval-e 'мякинник' || **Ham.-Sem.**: ?σ Sem. *˹ṣ˺ill- or *˹ṣ˺ull- 'thorn' > Akkadian ṣillum ~ ṣullum 'thorn', 'pin, needle'. A deglottalized variant *salw- ~ *sall- ~ *sull- is suggested by Bibl. Hebrew sal'lōn 'thorn', Jewish Aramaic סילוָא sil'wā, Syriac sal'w-ā id. and Arabic sullāʔ- 'épines du palmier' ‖‖ Berber *-ẓilˏyˏ- or *-ẓulˏyˏ- 'branch' > Ahaggar Twareg a-ẓal (pl. i-ẓl-ān) 'branch', East Tawellemmet a-ẓal (pl. i-ẓal-an), Tayert a-ẓal (pl. aẓl-an), Ghat aẓal (pl. iẓlan), Tashelhit ta-ẓaly-īt (pl. ti-ẓaly-ā) id. || **Ural.**: Finno-Ugr. *ćü‖iʔ∇ ~ *ćuʔ∇ 'stalk, stick' > Lowland Chreremis чылык ćъlъk 'a thin twig\rod used to clear pipes', чылым ćъlъm 'pipe', Highland Cheremis цылыык cələk 'a pipe of the Cheremis Dudelsack' ¦ proto-Ostyak *ćoʔ∇ > Kazïm Ostyak św̃ʔiˤ 'Knüttel beim śɔʔr-Spiel, Knüttel zum Schleudern von Zirbelzapfen', św̃ʔw̃w 'Knüttel beim śɔʔr-Spiel; eigens zum Abschalgen von Zirbelzapfen hergestellter Stock' || **Altaic**: Tungusic: Solon ɕoʔɕoʔxu 'transverse perches of the roof' ('поперечные жерди на крыше') || **Drav.** *cuḷikk∘ 'stick' > Tamil cuḷikku 'pikestaff, sharp-pointed stick carried by travellers', Kannada cuḷike 'a stout stick to beat cotton with'.

[86] *ḳoʒˤ∇ 'tree trunk' > **Kartv.**: Georgian ḳoč̌-i 'beam' || **Ham.-Sem.**: Sem. *guδˏ∇ˏˤ- ~ *giδˏ∇ˏˤ- 'tree trunk' > Hebrew 'gezaˤ ~ 'ǵezaˤ, Syriac guḏ'ˤ-ā, Arabic ǰiδˤ- id. ‖‖‖ Berber: Tashelhit agb̌ǰ̌ǯa (pl. igb̌ǰ̌wān) 'trunk' ¶¶ Ham.-Sem. *g- < *ḳ- by assimilation? || **Altaic**: Mong.

*qoʒuǀiɢula > Class. Mong. qoʒuɢula ~ qoʒiɢula, Halha-Mong. хозуулъ 'tree trunk, stump'.

[87] ***kaǹ∇(-b∇)** 'stalk, trunk' ('log') > **Indo-Eur.** *°genbʰ-/*gnobʰ- 'peg, stick, piece of wood' > [1] Germanic *kamb-, *kumb- > Old High German kembil 'Fesselblock', kamp 'compes', Old Norse kumbr 'wood-block', English chump id. (ch- due to the influence of chop), Norwegian (dial.) kump 'Klumpen'; [2] Germanic *knab-, *knabb-, *knap-, *knapp- 'peg, stick' (→ 'penis' → 'boy') > German (dial.) Knabe 'Stift, Bolzen', Old High German knabe, German Knabe, Anglo-Saxon cnafa 'boy'; Old Norse kneffil 'pole, peg, stick' ('Stange, Pfahl, Stock'), Middle Low German knevel 'short and thick transom (kurzes, dickes Querholz)', Swedish (dial.) knavel 'thin pole' || **Ham.–Sem.:** Sem. *kann- ≈ 'stem', 'base' > Akkadian kannu 'slip (of a plant), stalk, shoot (of a tree)', Syriac kanⁱn-ā 'stem (of a tree), stalk, root (of a plant)', Jewish Aramaic kanⁱn-ā, Mandaic kana 'base, fundament', ? Biblical Hebrew כֵּן ken 'base, pedestal' (the vowel e is mysterious), Tigre ከነት kan-ɐt (pl. ክናን kanan) 'rowing-pole' ¶ There is probably contamination of the Sem. word in question with another word, meaning ≈ 'place' ||| Cushitic: Agaw *kan- 'tree' > Bilin, Khamir, Kwara kana, Awngi kani || **Drav.:** [1] Drav. *kaǹǹ- 'sprout, shoot' > Tamil kaṇṇi id., Malayalam kaṇṇi 'shoot of betel vines' |||| [2] Drav. *kāmp∘ 'stalk, trunk' (< Nostr. *kaǹ∇(-b∇))> Tamil kāmpu 'bamboo; flower-stalk, handle, shaft', Malayalam kāmpu 'bamboo; stem, stalk', Kota ka·v 'handle', Toda ko·f 'hollow stem, handle of tool', Kannada kāmu, kāvu, Telugu kāma 'stem, stalk, handle', Gadba kāmē 'handle of a spoon', kāme 'handle of ladle', kanve stick', Kodagu ke·mbi 'bamboo *Oxytenanthera monostigma*', Kuwi kamba ᵈ kāmba 'handle' |||| [3] Drav. *kaǹ∇kk- 'stick' > Kota kaǹk 'thin dry sticks', Kannada kaṇike, kaṇuku 'stalk of millet', kaṇḍike 'stalk, stem', Tulu kaṇaku 'firewood', Telugu kaṇika 'stick', ? Kuwi kandi 'stick, twig', Kurukh kaŋk 'wood, timber', Malto kanku 'wood' || **Uralic:** Finno-Ugric *kanta 'stump of a tree' (→ 'base') > Finnish kanta 'ground, base, heel', Estonian kand (gen. kanna) 'heel', Finnish kanto, Estonian kand (gen. kannu) 'stump' ⦙ proto-Lappish *kōntɔ̄y 'stump' > Norw. Lapp guodⁱdo id., Lule Lapp kuottō̄i id.,

'windfallen tree', Kildin Lapp kūᴈnd·_ 'windfallen tree' ¦ Erzya Mordvin
kando, Moksha Mordvin kanda '(wind)fallen tree' ¦¦ Ob-Ugric *kⱻnt∇ >
proto-Vogul *kⱻnt(∇) 'a beam, serving as the vertical support of a
storehouse' > Pelïmka Vogul kᴈnt, Upper Lozva Vogul xānta; proto-Ostyak
*kant 'horizontal beam in a storehouse' > Vasyugan Ostyak kant.

[88] **ǯuℝ∇** 'pole, long piece of wood' > **Ham.-Sem.:** Egyptian zᴈw, zᴈyy
'Balken', Demotic Egyptian sy, Coptic soi 'poutre' ||| Berber *√zrr
'branch, cluster' > Ghadamsi ta-zrira 'branchette porte-fleur', Tamazight a-
zrur 'grappe', ? ta-zra 'collier', ? Kabyle a-zrar id. || **Kartv.** *ǯwar- 'pole'
> Old Georgian ǯuar-, Georgian ǯvar- 'cross', Megrelian ǯgunǯg- 'pole
(used as a prop for vine), stamen', Atinuri Laz mzguǯ- 'pole, thorn'||
Indo-Eur. *swer-/*°sur- 'pole' > Old Indian ˈsvaru-ḥ 'sacrificial post,
stake, long piece of wood' ¦¦ Greek ἕρμα 'prop, support', Homeric Greek
accus. ἑρμίν-α 'best-post' ¦¦ Old High German swirōn 'bepfählen', Middle
High German swir 'Uferpfahl', Swiss German Schwiren 'pole', Anglo-
Saxon swier, swior 'post, wooden pillar' ¦¦ Latin surus 'branch, pole'
¦¦ ?? Latvian svēre 'Ziehbalken beim Brunnen' (contamination with the
root of svḕr-t 'to raise with a lever') ||?? **Altaic:** Mongolic: Class. Mong.
ᴈoruga 'arrow with a horn head'.

[89] **ŝirɣuǀü** 'vein, sinew' > **Kartv.** *ǯarɣw- 'vein, sinew' > Old
Georgian ᴈarɣvi 'sinew', Georgian ᴈarɣvi 'vein', Megrelian ǯerɣvi, Svan
ǯärɣ- id.|| **Indo-Eur.** *ser(w)- 'vein, thread', 'to string, join in a string' >
Old Indian sarat 'thread', saraḥ 'string', Avestan hara 'mountain
range', Persian hār 'a string or garland of beads, etc.' ¦¦ Tocharian A sar-
'vein' ¦¦ Latin servia 'garland' || **Altaic** *sirwˈüˈ > Mongolic *sirbü-sün
'sinew, tendon' > Middle Mongolian širbüsün 'tendon, sinew', Class. Mong.
sirbüsün, Halha-Mong. шервэс, Kalmuck шурусн 'nerve, sinew,
tendon; fibre, filament', Buryat шурбэhэ(н) 'tendon', Ordos šörwösü,
Monguor šbuᴈᴈ 'nerve, muscle, fibre, filament' ||| Tungusic *sire-, *sire-
kte 'sinew, thread' > Ewenki sirᴈktᴈ 'sinew, vein, sinew-fibre', Solon
širittᴈ, Negidal siyᴈktᴈ, Ude siᴈktᴈ, Ulcha, Nanay sirᴈktᴈ 'thread';
Ewenki sirᴈn, Arman Lamut sirᴈn 'thread of horse hair', Negidal siyᴈn

'thread' ||| ? Korean: Old Korean (11th c.) sir̃l 'thread', Korean sir id. ||
??? **Ham.-Sem.**: South Cushitic: Iraqw dēˁarā́mo 'root, sinew' ◇ The
apparently irregular initial *s- in IE (for the expected *l- from *ŝ-) is
accounted for by the IE law of *l̄ r-incompatibility: in the presence of a *r
the expected initial *l- is replaced by *s-, i. e. *ŝ-...r > IE *s...r. A similar
law in Altaic seems to be responsible for the initial Altaic *s-.

[90] ***ʔeẑekU** 'thorn, hook' (< 'tooth') > **Ham.-Sem.**: Sem. *ŝikk(-at)-
'thorn', 'pin, nail' > Biblical Hebrew ŝek (pl. ŝikˈkīm) 'thorn', Arabic šikk-
at- 'weapon, edge', Jewish East Aramaic sikˈk-ā, sikk-aˈṭ-ā 'pin, nail',
Akkadian šikk-at-u(m) 'point, Spitze' (aphaeresis pS *ŝikk- < *ʔiŝikk-,
like in pS *ˈp- 'mouth' < *ʔap-, cp. Cushitic *ʔap- 'mouth') ||| Cushitic
*ʔiŝikʷ- 'tooth' > South Cush.: Kwadza iŝikuko, pl. iŝikʷa, Asa liga, Mbugu
iʔíke id. ¦¦ East Cush. *ʔilk- id. > Saho ik-o, Somali ilig, pl. ilk-o, Rendille
ilaħ, pl. ilk-o, Baiso ilk-o (pl.?), Elmolo ilk-oʔ, Arbore ilk-o, ilkwa id.,
Oromo ilk-āni 'teeth', Konso ilk-itta, Gidole ilh-itt, ilh-a, Gawwada ílgˤ-e,
Harso ilgˤakko, Sidamo hink-o, Alaba inḳ-u, Kambatta ink-e, Hadiya inḳ-ē,
Burji irḳ-ā id. ¦ Agaw *aRkʷ- id. (*R < Cush. *l and *r) > Bilin ʔɜrkʷi,
Khamir erəkʷ, Kwara yerkʷ, Kemant ɜrku, Awngi ɜrkʷí id. ¦¦ Beja
ayəkʷ 'a front tooth' || **Altaic** *ēlku 'hook', v. 'hang on (smth.), hang on a
hook' > Tungusic *elgu 'hook (for pulling fish out of a net)', (<?) 'bear's
fang' > Negidal ɜlgu/ɜ 'hook, bear's fang', Ewenki ɜlgu, Lamut ɜlgъ ~ ьlgъ
'fish-spear', Orochi ɜggu, Ulcha ɜlǯu, Orok ɜldu, Nanay ɜlgu 'hook' |||
Mongolic *elgü- v. 'hang on (smth.) > Class. Mong. elgü-, ölgü- v. 'hang,
hang on (a nail), elgün qada- v. 'nail onto (as pictures to the wall)',
Halha-Mong. ölgö- v. 'hang, hang on (smth.)' ||| ? Turkic *īl- v. 'hang on
(smth.)' > Old Turkic il- 'to catch smth. (with the hand, a hook, etc.)',
Türkmen īl- id. ('прицепляться, зацепляться'), Yakut īl- 'to hang
(smth. on an animal's back)', Qumïq, Qïrghïz, Qaraqalpaq, Nogay, Uzbek,
East Turkic, Turkish (dial.) il-, Qazaq iл īl-, Volga Tatar, Bashqurt эл– ьl,
Khakas iл– īl- v. 'hang on', Altay il- v. 'hook, hook on'.

[91] ***ḳˈaˈ kₗwˌ∇** 'tooth, claw', 'hook' > **Kartv.** *ḳaḳ w- 'hook' > Georgian
ḳaḳvi 'hook' ('Haken, Häkchen'), Laz ḳoḳ-a id., ḳoḳari ~ ḳuḳari id. || **Ham.–**

Sem.: Sem. *kakk- '(a kind of) tooth, sharp stick' > Jewish Aramaic kak'k-ā, Syriac kak'k-ā, Mandaic kaka 'tooth, molar', Akkadian kakk-u(m) 'stick, weapon' ‖ ? **Indo-Eur.** *kog-/*keg- 'hook, claw' > Germanic *hōka-, *hakan- and *hēkan- 'hook' > Old High German hāko, haggo, Anglo-Saxon hōc 'hook' > English hook; Old Norse høkja 'poker' ⫴ Slavic *kogъtь ~ *kogьtь > Old Russian, Russian 'коготь, Czech (dial.) kohát 'claw', High Lusatian kocht 'awn, костерь (a weed cereal)' ¶ The lack of labialization of the IE stem-final consonant is still to be explained ‖ **Uralic** *kokka 'a protruding point, hook' > Finnish kokka 'a protruding point', 'stem of a ship (Vordersteven, Vorderschiff)', Finnish (dial.) kokka 'hook, fish-hook', Karelian kokka 'hook, stem of a ship' ⦙ proto-Lappish *kōkkē > Norw. Lapp goakke 'hoe', Inari Lapp koakki, Kildin Lapp kuɜ ka̲ 'hook' ⫴ Vasyugan Ostyak kaɣaw, Teryugan Ostyak kåɣap, kuɣp- 'hölzener Hachthaken'; alternatively, the Ostyak word may go back to Finno-Ugric *kopkka < Nostr. *goPK̦a '(a kind of) tooth, hook' ⫼ Kolïma Yukagir kōke 'head (of a fish, of an animal)' ‖ **Altaic:** Tungusic *χūkte 'tooth' (< **χūk-kte, where *-kte is a suffix) > Ewenki īktɜ 'tooth', Negidal īktɜ 'tooth, canine', Nanay χukte 'tooth', Class. Manchu weyxe, Sibe Manchu vīχɜ 'tooth, canine', Jurchen yuyχe 'tooth' ‖ **Drav.** *kokk- 'hook' > Tamil kokki id., Malayalam kokka 'clasp, hook', Kota koky, Toda kwïky, Kannada kokki, kokke, Kodagu kokke 'crook, hook', Tulu kokkæ 'hook, clasp', Telugu kokki 'a hook', Gondi kokki 'hoe' ¶¶ The association of this Drav. noun with the partially homophonous verb *koŋkk-/*kokk- v. 'bend' is secondary (popular etymology). It brought about blended forms like Telugu koŋki 'hook' ◇ The labialization of the vowel in Ural., Drav. and Tungusic may be due to Nostr. *w (still preserved in Kartv.). The Nostr. vowel *a is reconstructed on the evidence of IE (initial *k- without labialization or palatalization), Semitic and Kartvelian. The long *-kk- in Ural. may point to the underlying ancient consonant cluster, but it (just as Kartv. *-k̦-) may be also explained by assimilation.

[92] *toř▽ 'bark; to bark (remove the bark), to peel' > ? **Ham.-Sem.:** Chadic: Angas-Goemay *(n)daram 'bark' > Sura dɜràm 'thick tree-bark', Tal dɜram, Yiwom ndàràm, Tambas dàràm 'bark', Angas darm ⦙ Warji tirhei

'skin' ⁝ East Chadic: Somray tàrín̄ 'bark', Kera tīrɜ, Tumak dāȑ 'human skin' ‖ **Indo-European** *der- 'to skin, flay, bark' > Armenian teᴦem 'I flay, skin' ⁝ Greek δέρω id., δείρω id. (*-yo-present) ⁝ Low Lithuanian (Zhemaitian) derù, Lithuanian diriù (*-yo-present), inf. dìrti v. 'flay, bark' ⁝ proto-Slavic *derǫ / *dьra-ti > Old Church Slavonic derǫ, dьrati v. 'skin, flay; tear to pieces, lacerate', Russian драть, де'ру v. 'bark (a tree)', обо'драть, обде'ру v. 'peel, bark', Czech deru, dříti 'schinden, schälen' ‖ **Altaic** *tōȑ∇ > Turkic *tˌ︢ōȑ 'birch bark' > Old Turkic toz 'birch bark', Volga Tatar tuz, Bashqurt tuδ, Qazaq toz, Standard Altay, Khakas tos, Tuva tʻós, Tofalar t̄os, Yakut tu͡os 'birch bark', Azeri toz-aɣačɪ 'birch tree' (aɣač 'tree') ‖‖ Mongolic *duru-sun > Class. Mong. durusun, Halha дурс 'shell, bark', Kalmuck dursən 'bark (Baumrinde)' ‖‖ Tungusic *duri 'cradle made of birch bark' > Lamut dȯr ⤳ dur, Negidal duy, Orochi duyi, Ude düi, Ulcha, Nanay duri id., Class. Manchu duri 'cradle' ◇ The IE root goes back to a merger of two Nostr. roots: *ᵗtʻoȑ∇ 'to peel, to bark' and *terᵗiᵗ 'to tear, burst'.

[93] *ḲaᵖpʔḳᵗᵗĒᵗ 'bark' > **Ham.–Sem.**: Cushitic: Agaw *ḳapp- > Awngi qap, Bilin k̲̄af 'bark' ⁝ South Cushitic: Iraqw qafi (pl. qafō) 'membrane, cover', qâfta 'peel of fruits', Alagwa qafaʔi, Burungi qafa 'bark' ‖‖ Chadic: West Chadic: Geji gùpŝɩŋ 'bark', Boghom kòpŝaŋ id., Zar of Kal kʷàb̞à, Zar of Gambar-Lere kàbú, Saya kóbɜk ⁝ Central Chadic: Tera gɜb̞à, Pidlimti g+b̞ɜr 'bark' ‖ **Uralic** *kopa 'bark' > Estonian kõba 'fir bark' ⁝ Erzya-Mordvin куво 'crust, rind', Moksha-Mordvin кувa id., 'bark' ⁝ Cheremis (dial.) kuwo ⤳ kuwü̃ ⤳ kuwə ⤳ kŭwo 'chaff, pod, husk', proto-Permian *ku 'bark, skin' > Votyak ku id., Ziryene ku 'pelt, skin' ‖‖ Samoyedic *kopå 'skin, bark' > Tundra Nenets хобǎ 'skin (of an animal)', Forest Nenets kōp:ã, Nganasan 'kufu, Enets 'koba 'skin', Taz Sölqup qop+ 'pelt of an animal, skin, bark, rind', Kamassian kʻuba. kʻuβa 'skin, hide, leather', Koibal куба, Mator kō 'skin', Taigi когото 'his skin' (according to Janhunen's analysis) ‖ **Altaic** *kʻǎpʻa 'bark, skin' > Turkic *kʻǎpuk 'bark, shell' > Old Turkic qavɪq, qavuq 'bran', Old Qïpchaq [14th c.] qawuq 'millet\barley gruel', Turkish kabuk, Türkmen gābɪq, Azeri gabɪg, Salar goχ, Volga Tatar, Bashqurt, Qazaq, Qïrghïz qabɪq, Gagauz, Balqar qabuq, Crimean Tatar

qabuχ, Uzbek qɑbiq, East Turkic qobuq, Chuvash χуп̆ӑ χωḃъ 'bark, shell', Khakas χabɪχ, Tuva χavɪq 'husk'; Gagauz qap 'cover' ||| Mongolic *qaᵍβᵓuda-sun 'bark' > Class. Mong. qaɡudasun, Halha хуудас, Buryat хуудаhа(н) 'sheet of paper', Kalmuck хуудс χūдъs id., χūдъsn̥ 'bark'; Mongolic *qaᵍβᵓura- v. 'peel' > Class. Mong. qaɡura- ~ qaura-, Halha хуура-х v. 'peel off'; Mongolic *qaᵍβᵓul- v. 'peel' > Middle Mongolian χaᵍɣᵓul-χu v. 'skin, flay, peel' ('abhäuten, abschinden'), Class. Mong. qaɡul-, Halha хуула-х v. 'peel off, skin, flay', Kalmuck хуул-х χūl-хъ, Monguor χūᶜli- id.; Mongolic *qobqul- v. 'peel, flay' > Class. Mong. qobqul-, Halha ховхло-х id.||| ?σ Tungusic *χabda- v. 'clean a tree from branches', *χabda-nsa 'leaf' > Manchu abda-, abdala- 'clean a tree from branches', abdaχa 'leaf', Jurchen abuha (or abdaha), Ewenki abdanna, Lamut ebdъnrъ ᴰ ebdъndъ, Negidal abdahān, Orochi abdasa, Ude abdeʰæ, Ulcha, Naikhin Nanay χabdata, Bikin Nanay χabtaca ~ χabca ~ χaftaca, Orochi χamdata, Sibe Manchu afəhə ~ afχa 'leaf', Class. Manchu afaχa 'leaf (flowing on water), sheet (of paper)' ||| proto-Korean (according to Starostin) *kàpʰ- (~ *kʌ̀pʰ-) 'bark' > Middle Korean kàpʰír, kə̀pčîr 'bark', Standard Korean k:əpcil 'skin, bark, shell', k:əpteki id., 'husk, peel', Korean dialects: Phyöngyang k:əpčil, Phyöngyang-Namdo k:əṕčíl, Kyöngsangdo k:əṕčì, Hamgyöngdo k:ɔ̂pči̯, Seoul k:ɔ̂ptíl, Chöngsando koptéɡi, Kangwöngdo kəpteɡi 'bark', Chejudo k:əpteɡi id., 'skin' ||| proto-Japanese *kapa 'skin, bark' > Old Japanese kapa, Japanese dialects: Tokyo kawá, Keto kàwa, Kagoshima kawa, Nase kó, Shuri kā́, Yonakuni kà̀ ¶¶ According to Starostin, the Altaic root has a variant *kʻēpʻo > proto-Korean *kʌ̀pʰ- (see above), Turkic *kᴸᶜᵊpek 'bran, chaff' and Mongolic *kebeɡ 'bran, husks'. These two variants may represent two different results of synharmonic levelling, suggesting the existence of a front vowel in the second syllable of the Nostr. root || ? **Kartvelian**: Georgian ḳep-i 'sheet of paper'; the unexpected vowel e has no explanation so far ◇ The vowel *o in Ural. may be explained by assimilary influence of *p.

[94] ***Ḳayer∇** 'bark, film' > **Altaic** *kʻayEr∇ > Mong. *qayirᴸ∇ᴶ-sun 'scales' > Middle Mongolian qairsun 'fish scales', Class. Mong. qairsun ~ qairasun, Halha-Mong. хайрс 'scales (of fishes and reptiles), Ölöt

Kalmuck xārsŋ 'scales, hard bark, callosity' ||| Turkic: Volga Tatar qayraq 'hard tumour' (the homonymy with qayraq 'whetstone', bringing about popular etymology: 'tumour as hard as a whetstone'), Volga Tatar qayrı 'bark, lime bast', Chuvash (dial.) xoуъr 'bark' ||| Tungusic *xere- v. 'bark' > Class. Manchu ere- v. 'bark of a birch-tree', Ulcha xɜrɜ- v. 'scale (dried fish skin)', Tungusic *xere-kte 'bark' (noun) > Ewenki ɜrɜktɜ 'bark', Negidal ɜуɜktɜ, Ulcha, Orok, Nanay xɜrɜktɜ, Orochi ɜ̄ktɜ 'skin', Lamut ɜrtъ id., 'scales' ||| proto-Korean (according to Starostin) *kʌ́r-čʰi̯ə̀ŋ > Middle Korean kʌ́r-čʰi̯ə̀ŋ 'young skin of a plant' ||| proto-Japanese *kara 'shell' > Old Japanese, New Japanese kara || **Indo-Eur.** *ker- 'skin, hide, bark' > Old Indian 'carma 'skin, hide', Avestan čaraman- 'hide, leather', Old Persian čarman- 'leather' ¦¦ Latin corium 'thick skin, hide, bark' ¦¦ Greek κώρυκος 'leather sack' ¦¦ Irish curach, Welsh corwg, cwrwg 'boat made of animal skin' ¦¦ Lithuanian karnà 'lime-bast', Prussian kērmens 'body' ¦ Slavic *kora 'bark' > Old Church Slavonic кора, Bulgarian, Russian ко'ра, Serbo-Croatian kȍra, Slovene kóra, Czech kůra, Polish kora id.|| ?? **Kartv.**: Georgian kerk- 'bark, crust, peel', Arxavuri Laz kyark- 'skin of the hand' || **Uralic**: (1) pre-Ural. **ˈkayer∇ > **kayr∇ > **kār∇ > Finno-Ugric *kōr∇ 'skin, bark' > Finnish kuori 'skin, peel, bark, crust, shell', Estonian koor 'shell (of eyes), peel, bark' ¦ Erzya & Moksha Mordvin kaŕ 'bast shoe' ¦ Permian *kȯŕś > Ziryene kɨŕś 'bark' ||| Samoyedic *kär (?) 'skin, shell' > Tundra Nenets сяр" 'skin, surface', Obdorsk dial. śā̆rˀ 'harte Innenfläche der Tierhaut', Forest Nenets śaˑrˀ in nūm śaˑrˀ 'Himmelsgewölbe', Taz Sölqup qora 'hide' ||| Kolïma Yukagir xār 'skin', šān-xār 'bark' (lit. 'tree-skin') |||| (2) pre-Ural. **kaˈyer∇ > Finno-Ugric *kere > Finnish keri 'the bark which grows on the birch tree after the first bark has been removed', Estonian kere 'lime-bast' ¦ proto-Lappish *kɜrɜ 'bark' > Norw. Lapp gârrâ, Kildin Lapp kɜrr̩ id. ¦ Erzya Mordvin керь keŕ, Moksha Mordvin кяр kär 'bark, sheet of lime bast' ¦ Highland Cheremis kər, Lowland and East. Cheremis kür id. ¦ Permian *kōr > Ziryene kor / kory- 'peel', (in a set phrase) 'sheet of lime-bast', Luza Ziryene kor 'upper layer of bark', Upper Sïsola Ziryene kǫr 'bark', Votyak, Permyak kur, Southwestern Votyak kǔr, Beserman Votyak kȯr 'lime bast' ¦¦ Ob-Ugric *kīr(∇) 'bark' > proto-Vogul *kīr > Tavda,

Konda and Sosva Vogul kēr id.; proto-Ostyak *kir 'snow crust' > Vakh Ostyak kir id.; proto-Ostyak *kär 'bark' > Vakh Ostyak kär ¦ Old Hungarian kér 'diaphragm', (in compound words) -kér 'thin skin, film', Hungarian kéreg 'bark, crust'.

[95] *ṭo̗w̗ga or *ṭoga̗-w∇̗ 'hide, skin' > **Kartvelian** *ṭq̇aw- id. > Old Georgian ṭq̇aw- 'leather, skin, hide', Georgian ṭq̇av- id., Megrelian ṭq̇eb- 'skin', ṭq̇abar- v. 'skin', Laz ṭq̇eb- ~ ṭeb- 'skin, hide' **|| Ham.-Sem.:** Chadic *√ḍk 'skin': West Chadic: Bole ḍìšĭ ¦¦ Central Chadic: Masa ḍíg̃ína ~ ḍik 'skin', Zime ḍíké ~ ḍìké 'human skin', Lame ḍikietú, Lame-Peve ḍiketu 'skin' | Chadic *√ṭk ~ *√tk 'skin, body' > East Chadic: Migama túkkú, Jegu tok, Mubi tògò ≙ tɔ́gò 'skin, hide' ¦¦ West Chadic: Yiwom tak 'body' | Warji ṭ̣ᶘᵃ̣, Tsagu čúké, Kariya tí, Miya túwàtú, Mburku ṭ̣ᶘwó, Jimbin túwá 'body' | Ngizim tᶘkà 'body' (unless from Kanuri tíg̃ᶘ 'body') ¦¦ ?? Central Chadic: Masa twᶐ, tṹːnᵃ, Zime-Batna tú 'body' **|| Indo-Eur.** *twakos 'skin, hide' > Old Indian tᴠak 'skin, hide' ¦ ? Old Persian taka- 'shield' ¦¦ Greek σάκος 'shield' (← * 'made of leather'), φερεσσακής m. 'shield-bearing, Schildträger' (σ- < *tᴡ-, -σσ- < *-tᴡ-) ||| Hittite tᴜekka- 'body, person, self', Lycian tᴜkedri- 'statue' **|| Uralic** *°toᵏk'∇ (or *toᶘ∇, *tow∇) > Ob-Ugric *tä̆ᶘ- 'skin, leather' > proto-Vogul *tä̆waĭ id. > Tavda Vogul tawĭ, Konda Vogul towĭ, etc.; proto-Ostyak *tä̆ᵧta 'reindeer hide' > Teryugan Ostyak taᵧta, etc. **|| Altaic:** ?ɸ Tungusic *ṭiḳi-kta 'skin, hide (from animal's head)' > Ew tiki-kta 'skin', Lamut tῑkзn 'hide (from animal's head), Negidal ṭikta, Orochi tikta 'animal's hair' || **Dravidian** *tokk° 'skin, bark, rind' > Tamil tokku, Telugu tokka id., Malayalam tokku 'skin, peel' | derived stem *tokaṭ 'bark, peel' > Kannada togaṭu, togaṭe, tōṭe 'bark, rind, peel, pod', Tamil, Malayalam tōṭu 'shell of a fruit', Gondi tōtā 'outer skin of the mahua fruit', Gondi Koya toṭṭe v. 'peel' ◇ The meaning 'body' (in Hittite and West Chadic) is secondary (metonymy 'skin', 'body').

[96] *ṭa�U̗ya 'skin, pelt' > **Ham.-Sem.:** Chadic: Kariya, Pa'a tala, Tsagu tal 'skin' || **Uralic** *talᶘya 'skin, pelt' > Finnish talja id.; proto-Lappish *tōlyē 'pelt' > Norw. Lapp dᴜolᴵlje ||| Samoyedic *ᶧtᶧᵃᵬᶧy̆ᵬ (= *t|cᵃᵬj|ńᵬ)

'skin of the head' > Tundra Nenets тай 'skin of the forehead; forehead', Obdorsk dial. tāy 'skin of the face', Forest Nenets taɨ, tāyɔk·u id., Nganasan tuaja 'skin of the forehead', Somatu Enets tâjo, Bay Enets taɨjo 'skin of the head', Kamassian (der.) tʻuyu-šˍk'tuʻ 'reindeer\elk hide used as a bed (Schlafstätte)' || **Altaic** *°tʻaɪ̄ɽu̍ʾ̄ > Tungusic *talu 'birch bark' > Ewenki talu, Solon tala ~ talu̬, Negidal, Ulcha, Orok talu̬, Orochi talu, Ude taluɡa, Nanay talo ~ talu̬, Class. Manchu tolχon || **Drav.** *tōl / *toli 'skin, hide' > Tamil, Malayalam tōl 'skin, hide', Tamil toli 'skin, rind, husk', Malayalam toli 'skin, bark, peel, rind', Kota to·l, Toda twɪ·ʂ, Kannada tōl(u), Kodagu to·lɪ, Telugu tōlu, Kuwi tōlū, tōlu 'skin, hide', Tulu tolikæ, Parji, Gadba tōl 'skin, bark', Naikri, Naiki, Parji tōl 'skin', Gondi tōl 'skin, hide' ⩐ tōla 'skin, bark of tree' ⩐ tōlu 'skin', Konda tōl, tōlu 'skin (of animals)' ◇ The rounded vowel following *l in the Nostr. etymon is tentatively postulated as responsible for *-u in Tungusic and the labializing assimilative influence in Drav. (bringing about *ō rather than regular *a < Nostr. *a).

[97] ***Ḳaɪ̄ɽu̍ʾ̄** 'skin, film, bark' > **Indo-Eur.** *kalno-, *kḷno- 'callosity, hard skin' > Latin callum, callus 'hardened thick skin, callosity' ‖ Sanskrit ˈkiṇa 'callosity' (⟵ Middle Indian < *kṛṇa) ‖ Albanian ˈa-kull 'ice' ¶ The stem may have been semantically influenced by IE *k|k̄al- 'hard' (> Old and Middle Irish calath, calad 'hard') || **Uralic** *kaɪ̄wᐁ 'film, thin skin' > Finnish kalvo 'film, membrane', Estonian (dial.) kale, kalu, Livonian kaɪ̄ɡ̲ 'cataract' ¦ Permian amb*kiɪ̄ > Ziryene kiɪ̄ 'seed-coat, surface film, outer [scaling off] layer of birch bark, dandruff', Votyak kiɪ̄ 'scales that come off from the bark, dandruff' ‖ Hungarian hályoɡ, (dial.) hajaɡ, halyaɡ, hálog 'cataract' ¶ The Permian root is ambiguous: it belongs here only if its *i is accounted for by assimilatory influence of consonants; otherwise it belongs to Finno-Ugric *keẑe < Nostr. *keẑʔᐁ 'skin, bark' || **Altaic**: Mongolic *qali-sun 'the outer layers of smth.; peel, rind, bark, skin' > Class. Mong. qalisun, Halha хальс, Kalmuck хальсн χaɪ̄san, Buryat χaɪ̄ha(n) id., Monguor χaliʒˍʒ 'pellicule, membrane, écale, épiderme' ||| Tungusic *χalu- 'pellicle' > Bikin Ude alu 'dandruff', Class. Manchu alχuwa 'outer pellicle (of brain\kidneys\heart), skin of fruit'; Tungusic *χalu-kta 'film, inner side of

hide (mezdra)' > Lamut altъ id., Orok χaluqta, Naikhin & Bikin Nanay χaloqta, Ewenki, Orochi, Ude alukta, Negidal alta 'the inner side of hide'; Tungusic *χalu- > Kur-Urmi Nanay alu- v. 'remove the inner side of hide', Lamut alъw- id., v. 'remove a film' ◇ Compare also Kartv.: Georgian ḳrol-i 'outer shell of a nut\chestnut'. If it belongs here, the initial consonant is to reconstruct as *ḳ-. The root is to be carefully disinguished from paronymic roots, such as *Ḳoẑ∇ 'to peel, to skin'.

[98] ***ḳoRup∇** '(kind of) bark', 'skin' > **Kartv.**: Georgian ḳorp-i 'bark of cork-oak, cork' || **Ham.–Sem.**: Sem. *√ḳrp 'to peel off' > Arabic √qrf id., Ge'ez √ḳrf 'v. peel off, skin, bark'; Sem. *'ḳirap(-at)- 'bark' > Arabic qirf-at- id., pl. qiraf-, Ge'ez ḳəraft 'bark, skin, peel, rind'; probably also Sem. *'ḳu|irab- > Arabic qirb-at- (pl. qirab-āt-) 'a large skin for milk or water', Tigray ḳʷərbət, Amharic ḳorbət 'skin for milk', ḳurbət 'tanned hide used as a sleeping mat', Tigre ḳərbət 'dressed skin; skin for water\milk\honey', Ge'ez ḳʷarbābit, Amharic ḳʷarbəbičča 'leather bag'; Ethiosemitic ↣ Beja 'kʷərbe 'skin', proto-Agaw *ḳʷ∇rb-∇t- 'skin' > Khamir ḳʷər'bī 'skin, hide', Khamta kerbir 'skin', Kwara ḳōrbē ~ kōrbē ~ kōrbī 'skin, leather'; ? Ge'ez ḳarb 'eyelid' ||| ? East Cushitic: Tsamay garb 'skin' ||| Chadic: West Chadic: Tsagu ḳórṓpə̀, Wangday kʷòrup 'bark' || East Chadic: ? Somray kʷàbə̀ráẃ 'bark' || **Indo–Eur.** *kreup- 'crust, crusted' > Celtic: Latin (↤ Gaulish) cruppellariï 'armoured people, i.e. the Gaulish gladiators who fought in full armour' || Old Norse hrúfa 'crust of a wound', Bavarian German Ruff 'Kruste auf rasch getrocknetem Erdreich', Old High German ge-rob > German grob 'coarse' || Latvian k̓aũpa 'scab, wart', k̓aũpis 'scab', Lithuanian nu-krùpęs 'scurfy', kraupùs 'coarse'; in the IE languages the root contaminated with *(s)krep-/*(s)kerp- of another origin (> Old High German scorf, Anglo-Saxon scēorf 'scurf', Lithuanian karpa 'wart') || **Altaic**: Mongolic qoru'β'u > Class. Mong. qoruu, qorgu, Halha xуруу, Kalmuck χorɣǎ 'spot in the eye, film, cataract'.

[99] ***Ḳoẑ∇** 'to skin, to bark' > **Hamito–Semitic**: Semitic *°√ḳŝw > Arabic √qšw (past qašā, present-future -qšuw-) v. 'bark (wood), skin (a

snake)' ‖ **Uralic** *koẑ∇- v. 'skin, bark' > Lowland & Eastern Cheremis kuδaša-, Highland Cheremis kъδaša- v. 'take off (clothes, footwear)' ¦ Permian *kuĺ- v. 'take off, bark (wood), skin (an animal)' > Votyak кыль- kɨĺ- v. 'take off (clothes)', Ziryene куль- kuĺ- id., v. 'bark (wood), skin (an animal)', Yazvian kúĺ- v. 'bark, skin' ‖ Upper Konda Vogul kɛ̄it-, Upper Lozva Vogul χait-v. 'peel, scutch (hemp\nettle)', Tavda Vogul kɜiɛntol 'chaff (of hemp\nettle)' ‖ **Altaic**: Mongolic *qolt'u̓'-sun 'bark (of a tree)' > Class. Mong. qoltusun, qoltasun, Halha холтос id.; Mongolic *qoltu- (+ deriv. suffixes) v. 'peel off' > Class. Mong. qoltul-, Halha холтлох, Kalmuck холтлх χoltəlχə, Class. Mong. qoltura, Halha холтрох id.

[100] ***Ḳ∇R∇Hp̣|p∇** 'piece of leather (used esp. as footwear)' > **Indo-Eur.** *kerəp-/*krēp- id. > Latin carpisculum '(a kind of) shoe' ‖ Old Irish cairem 'shoemaker' (< **kariamos, IE *k₀rəp-), Welsh crydd (< Celtic *ka'riyos), Old Cornish chereor, Breton kere, kereour id. ‖ Old Norse hriflingr, Anglo-Saxon hrifeling 'shoe' ‖ Lithuanian kùrpė, Latvian kur̃pe, Prussian kurpe 'shoe' ¦ Slavic: [1] *kъrpa 'piece of cloth' > Church Slavonic крѪпⱭ krъpa 'textura, ὕφασμα' ('web'), Bulgarian 'кърпа 'shawl', Macedonian Slavic крпа 'rag, shawl, towel', Serbo-Croatian kȑpa, Slovene kŕpa 'rag, patch'; [2] *kъrpъ, *kъrpь, *kъrpja '(a kind of) footwear' > Polish (dial.) kierp id., karpie 'a kind of footwear with a wooden sole', Czech (dial.) krp 'high boot', Serbo-Croatian (dial.) kȑplje 'ski', Serbo-Croatian kȑplja 'wooden hoop on shoes for walking on deep snow' ‖ Greek κρηπίς / κρηπίδος 'shoe' ‖ **Ham.-Sem.**: Chadic *√krp 'footwear' > West Chadic: Tsagu kàràpátàn, Mburku kárákɜm 'shoe' ‖ Central Chadic: Daba kìráp, Kola kráp, Musgu harabáǵ id. ‖ **Drav.** *ker∇pp- 'footwear (sandals, etc.)' > Tamil ceruppu, Malayalam cerippu, Kota kevr, Toda kerf, Kannada keravu ~ kerahu ~ kerpu, Telugu ceppu 'sandal, shoe', ? Kolami, Naikri kerri 'shoe, boot', Pengo ɕerup, ɕerpu, Gondi serpum ᵈ sarpum ᵈ sarpo ᵈ sarpu ᵈ herpunъ 'sandal', Konda sepu 'shoe', Kuwi seppu ~ seppū id., ɕepuŋga 'sandals', Kurukh kʰarpā 'straps (without sole) crossed over and worn round the ankle'.

[101] *p̣ix̣|ɣɣA 'sharp bone, sharp tool' > **Kartv.** *px̣a- (or *pqa-) 'fish bone, cartilage, awn' > Georgian px̣a- 'cartilage, awn', Megrelian x̣a- 'snake's cartilage, fish scale', Laz mx̣a- 'fish bone', Svan px̣a- 'fish bone'; according to Klimov, the Georgian verb px̣eḳ-/px̣iḳ- v. 'scrape (скоблить)' belongs here as well ‖ **Indo-Eur.** *(s)p(ʰ)ēi-/*(s)p(ʰ)ī- 'pointed (spitz), a pointed piece of wood' > Old Indian 'sphya- 'piece of wood shaped like a sword; shoulder-blade', Khowar pʰī 'wooden spade', Prs ⟨sⱼfih 'oar, spade' ‖‖ with the root-extension *-d-: Anglo-Saxon spitu, Old High German spiz 'spit (Bratspieß)', German Spieß 'spear, spit', Norwegian spita 'Pflock', spit 'point', Old High German spizzi, German Spitze id., English spit ⦙ Latin cuspis, -dis 'point (of a spear); sting; spear, lance; spit' (< *kuri-spis) ‖ **Uralic** *piɣe 'flintstone, stone' > Finnish pii 'flintstone', Finnish, Estonian piikivi id. (kivi 'stone') ‖‖ Samoyedic *pьå̊ɣ 'stone' > Tundra Nenets пэ, Obdorsk dial. pāeˈ 'stone, glass', Forest Nenets pāeɣ id., Tundra Nenets tūm-pe, Forest Nenets tup-pī 'flintstone, Feuerstein' (tū 'fire'), Somatu Enets fû, Bay Enets fu ~ pu 'stone' ⦙ Taz Sölqup pū, Ketj, Tïm & Turukhan Sölqup pū 'stone' ⦙ Koibal pi ⦙ Mator hilä, Taigi hɣla id. ‖‖ Kolïma Yukagir pie 'Berg, Stein, Felsen' ‖? **Altaic:** Tungusic: Class. Manchu fe- v. 'mow' ‖‖ Korean pi- v. 'cut as with a sickle' ‖?? **Ham.-Sem.:** Cushitic: Iraqw fēħ- v. 'split' ‖‖ West Chadic: Miya ḅiɣ-, Warji ḅiɣ- v. 'stab, pierce', Kariya ḅíɣa̍, Siryanchi ḅíɣù v. 'pierce' ⦙ Central Chadic: Logone p̣íɣà v. 'cut'.

7. Anatomy

The speakers of Nostratic had a fairly good knowledge of anatomy. The words usually do not distinguish between the human body and that of animals, but we may guess that their main interest was in the latter. In addition to words referring to easily observable and identifiable parts of the body (head, leg, horn, tail, etc.), they had special terms for inner organs and inner substances: not only 'heart' and 'liver', but also 'bile' (*piš∇), 'spleen' (*ˈṭˈäx̣1|a~*ˈṭˈä1|x̣a, *ˈ1ˈäˈle̩ˈp̣A), 'brain and marrow', to such details which are not usually distinguished today (by those who are not physicians), e.g. 'occiput' (*ˈg̣ˈedi), 'sinciput' (*ṭEqmE), 'popliteal space (hollow at the back of the knee)' (*goˈatḲE), 'jugular vertebra, nape' (*ñiḲa). All this is natural for

the society of hunters, for those who used different parts of animal bodies for cooking and for manufacturing goods.

[102] *piš∇ 'bile' > **Indo-European** *bis-(t)l∇ 'bile' > Latin bīlis (< *bislis) id. ⁝⁝ Welsh bustl, Old Cornish bistel, Breton bestl id. ‖ **Uralic** *piša 'bile' (→ 'green, yellow') > Erzya Mordvin piže, Moksha Mordvin piža 'green, copper' ‖‖ Samoyedic *pьtä 'bile' > Tundra Nenets пāдя, Forest Nenets pacầ, Nganasan fate ⁓ hotɨ, Enets poбe id. ⁝ Taz Sölqup pat 'bile', patɨˈ1 'yellow, green, blue', Tïm Sölqup paˑd̦, Chaya Sölqup pače 'bile'⁝ Kamassian pʼåda, Koibal пода 'bile' ⁝ Mator хадыде 'his\its bile'‖ **Dravidian** *picc- 'bile' > Tamil piccu 'bile, madness', Malayalam piccu, Kota puc, Kannada peccu, paccu, piccu, Telugu picci, picca 'madness', Toda püc 'anger', Naiki pisak 'mad'; Drav. ⇸ Old Indian pitta- 'bile'.

[103] *ṭʼäχịḷa ~ *ṭʼäịḷχa or *ṭʼaχịḷE ~ *ṭʼaịḷχE 'spleen' > **Ham.-Sem.**: Sem. *ṭiħāl- id. > Middle Hebrew טְחוֹל ṭəˈħōl, Jewish Aramaic, Syriac ṭəħāˈl-ā, Arabic ṯiħāl- 'spleen'; Semitic *ṭulħīm- 'spleen' > Akkadian ṭulīmu, Mehri, Harsusi ṭɛlˈħaym, Jibbali ṭɛlˈħim id.‖ **Altaic** *tāḹal∇ > Turkic *tˌāl 'spleen' > Old Uighur tāl, East Turkic tal, Yakut tāl id.; der.: Turkic *tʼāl-ak (~ ¿*täläk) id. > Turkish dalak, Gagauz dalak, Azeri dalaɣ, Tebriz Azeri däläɣ, Türkmen dālak, Qazaq, Volga Tatar, Bashqurt talaq, Uzbek talɑq ‖‖ Mongolic *deli-kün > Class. Mong. deligün, Middle Mongolian delgün ⁓ deliʔün, Halha дэлүү(н), Buryat дэлюү(н), Kalmuck delün ⁓ delün, Monguor d̦iliū, Dagur delkin; Ancient Mongolian *deli-kün ⇸ Classical Manchu delixun ~ delyaxun, Ewenki dзlkin, Solon dзlkī̃; Middle Mongolian *deligün > Ude dзligi ‖ **Kartvelian** *ṭqirp- 'spleen' > Georgian ṭqirp-, Megrelian ṭqip- id.

[104] *lˈäịeˈpA 'spleen' > **Ham.-Sem.**: East Cush.: Afar aleˈfū [pl. aˈlef-it] 'spleen' ‖‖ West Chadic: Sura ḷlap, Kofyar lấp, Montol, Angas lap 'spleen' ‖ **Uralic** *läpp∇ (or *lepp∇) > Finno-Ugric: Cheremis lepa ⁓ lep ⁝ proto-Permian *lɔp > Votyak lup, Southwestern Votyak lup, Ziryene lop / lopt-, Upper Sïsola Ziryene lɔp, Yazvian lop ⁝ Lappish **δapδe (by assimilation from *lap-δe with a suffix -δe) > Norw. Lapp dawˈde ⁓

daďꞮve, Southern Lapp daabrɪe, Ume Lapp hàbꞮdee, Lule Lapp tabꞮtē, Skolt Lapp täbꞮdd, Kildin Lapp тāммьп tām͆ᵇp(ā̆) ‖ Teryugan Ostyak ꝺȃ̆pɔtne ┊ Hungarian lép ‖‖ Samoyedic: Forest Nenets ꝺapśɔ ꝺ rabˉśɔ id. ‖ **Altaic:** Tungusic: Orok lipče ‘spleen’.

[105] ***ṭEqmE** ‘sinciput, crown of the head, top, tip’ > **Ham.–Sem.:** Sem. *°√tχm > Arabic ʔaṭχam- ‘anterioris pars nasi (in homini et iumento)’ ‖‖ Cush.: Agaw **d∇m∇ħ > Awngi dūmī ‘top’, Agaw ꞮꞮꞮ Ge’ez dɔmāħ [dɔmaħ] ‘head, sinciput, summit’ (unless < Sem. *dimāγ-, cf. Arabic dimāγ- ‘brain’) ┊ ? East Cush.: Oromo ḍuma (nom. ḍum-ti) ‘end’ ‖ **Kartv.** *°t͡ʼqʼem- (or *°t͡ʼqʼēm-) > Old Georgian tχem-i ‘sinciput; top of the hill’, Georgian tχem-i id. (‘Scheitel, Gipfel’) ‖ **Indo-Eur.** *°teHmn̥ > Narrow IE *°tēmn̥ > proto-Slavic *těmę / těmen- ‘crown of the head’ > Serbian Church Slavonic, Old Russian тѣма̄ těmẽ / темен- temen- id., ‘skull’, Russian 'темя, Ukrainian тꞮм'я, Polish ciemię, Serbo-Croatian tjȅme ‘crown of the head’, Czech témě, temeno id., ‘summit’ ‖ **Altaic:** Mong. *teme-sün > Class. Mong. teme-sʊ̈ ‘edges of a net; border or hem of a mat’ ‖‖ Tungusic *tem∇ ~ *tuɲE ‘sinciput, crown of the head’ > Ilimpeya Ewenki tɜmulkᴇ̄n ~ timulkᴇ̄n, Ewenki of Podkamennaya-Tunguska & Yerbogachen tuɲulkᴇ̄n ‘sinciput, skull’, Solon tumulkꞮ̄, Lamut tɜɲᴣlɜk ꝺ tuɲᴣlɔk, Arman Lamut tuɲᴣk ~ tɜɲᴣk, Ude tɜmugᴣ, Orochi тумаха, Sibe Manchu tuɲun ‘sinciput’.

[106] ***ᴦg�edi** ‘occiput; hind part’ > **Altaic:** Mong. *gede ~ *geᴣi (< *gedi) ‘nape of the neck, occiput, hind part’ > Class. Mong. gede id., Class. Mong. geᴣige, Halha гɜᴣᴣг ‘nape of the neck, plait\braid of hair, pigtail, queue’, Buryat гɜᴣᴣгɜ ‘plait of hair’, Western Buryat гɜᴣᴣгɜ ‘occiput’; Middle Mong. gedergü, Monguor g_id͡Ɪergu ꝺ gedergu ‘backwards’‖‖ Tungusic *gedi ‘occiput’ > Ewenki gᴣdimuk ꝺ gᴣdᴣmuk, gᴣtkᴇ̄n id., Lamut gᴣdᴣkᴣ, gᴣdᴣmᴣk ~ gᴣdɔmɔk id., ‘occiput bone’, Negidal gᴣdᴣmuk, Ulcha gᴣki(n-) ‘occiput’, Ude gᴣdigᴣ id., ‘nape of the neck’ ‖‖ ? Turkic *KEᴅi-n ‘backwards’ > Old Turkic, Chaghatay käᴅin ‘behind’, Khakas кизꞮн kꞮzin ‘hind’ (adj. of animal’s legs, wheels, etc.), Sagay, Koibal Turkic, Kachin kezin, Küerik, Shor käzin ‘hind part, backwards’, adj. ‘hind’, Qazaq kein

'behind', Yakut kätäχ 'occiput' || **Ham.–Sem.**: Chadic: Sura šɛt, Kofyar žèt 'occiput' ||| Cush.: Agaw: Khamta gīd 'hind' ¦¦ East Cushitic: Sidamo gidensa, gedensa 'after', gedensa 'last, the end', gedensanni, gedensā 'afterwards', Somali gadāl 'behind' ('dietro, indietro') ||| ? Omotic: Gofa gedo 'hind part' || ? **Kartv.**: Georgian ked- 'occiput', ?? Megrelian kindir id.

[107] ? *goǀatḰE 'popliteal space (back of the knee), armpit' > **Ham.–Sem.**: Sem. *√ɣtḳ > Central Jibbali ɣat'ḳet (pl. 'ɣe'tɔḳtɜ), Eastern Jibbali ɣat'ḳet 'popliteal space', Mehri ɣɜt'ḳayt (pl. ɣɜtɜḳtɜn) 'hollow at the back of the knee' ||| ? Egyptian ḥcc.t 'shoulder (Achsel), armpit' || **Altaic** (acc. to Starostin) *ok'∇ 'popliteal space, armpit': Middle Korean òkóm, Phyöngyang Korean ogɨm 'popliteal space', Kangwöndo Korean oɣumpẽ 'knee' ||| Mong. *ogu-da-sun 'armpit gore of clothes' > Class. Mong. oɣudasun id., Kalmuck oɣъ́dъsŋ, ogдъsŋ 'Ärmelzwickel' || ?? **Indo–Eur.**: Narrow Indo-Eur. *aks- (and/or *ok-?) 'armpit' > Old Irish ochae 'hollow of the armpit' (suggests IE *°ok- without *-s-?) ¦¦ Germanic: Old High German uochisa 'armpit'; with a *-n-suffix: Old High German uochsana, Anglo-Saxon ōxn 'armpit'; with a *-t-suffix: Anglo-Saxon ocusta, ōxta, English oxter 'armpit', Old Norse óst, óstr 'throat-pit' ('Halsgrube') ¦¦ ?φ Latin axilla 'armpit' (with a demin. suffix -illa); metathetic variant ascilla id.; ⌁→ Old Irish oxal 'armpit' ¦¦ Armenian anutʰ (< *asnutʰ) 'armpit' |||| cf. also a similar word *aks-el- for 'Achsel, shoulder': Latin āla (< *aksla) id. ('wing') ¦¦ Old Norse ǫxl, Anglo-Saxon eaxl, Old High German ahsala > German Achsel 'shoulder' ¶ The connection between *aks- 'armpit' and *aks-el- 'shoulder' is not clear (derivation or semantic change, and if so, in which direction? or secondary semantic association between originally unrelated stems?) ¶¶ The IE cognate is valid if Nostr. *tḰ may yield IE *ks or IE *-s- is a suffix.

[108] *ñiḰa 'jugular vertebra, neck, nape of the neck' > **Indo-European** *knok(k)- > Old Norse hnakki, hnakkr 'Nacken', Old High German hnac / hnackes 'Nacken, Gipfel', Middle High German genicke 'Genick', Anglo-Saxon hnecca 'Nacken, Hinterkopf', English neck ¦¦ Celtic: Old Irish cnocc 'protubérance, colline, mont', Irish cnoc, Welsh

cnwch 'protubérance', cnwch y gwegil 'la bosse de la nuque', Old Breton cnoch 'tumulus', Middle Breton knech, Breton krec'h, kreac'h 'hill' || **Uralic** *ńika 'vertebra, joint [of a body], neck, nape of the neck' > Finno-Ugric *ńika > Finnish nikama 'vertebra, node of a stalk' || Hungarian nyak 'neck' | Tavda Vogul näk, Northern Vogul nak 'node of a stalk, joint'; Kazïm Ostyak ńăk id. ||| Samoyedic: Taz Sölqup nukɨ 'collar-bone', Narïm Sölqup nug, Ketj Sölqup nukka 'occiput' || **Altaic** (according to Illich-Svitych) *ńika 'neck, vertebra' > Mongolic *nigur-sun 'spinal marrow, spinal cord' > Class. Mong. nigursun, Halha nigars(an), nigas, Kalmuck нүһрсн nuɣə̆rsŋ 'spinal marrow', Shira-Yughur nurɣusən 'marrow' ||| Tungusic *nik-, *nikin- 'neck' > Barguzin Ewenki nikin 'neck, vertebra of the neck', Ewenki nikinma ~ ńikinma ⚹ nikimńa ~ ńikimńa ~ nikimna ~ ńikimna ⚹ nikimŋa id., Chumikan Ewenki nikin 'throat', Solon miχama ~ niχima 'neck', Lamut ńıqъn ⚹ ńıkъn ⚹ ńikan 'back of the neck, vertebra of the neck', Negidal nıχma ⚹ nikimna ⚹ nıkma 'neck, vertebra of the neck', Ulcha ńıqı(n-) id., 'back (dorsum)', Orok nıqı(n-) 'neck part of a fish head', nıqımńa 'neck of a reindeer', Class. Manchu niqde 'a concave curve on the horse's back (between the mane and the front part of the shoulder-blades); nape' ||| ? Turkic *jaka 'collar' > Old Turkic jaqa, Turkish yaka, Azeri jaχa, Türkmen, Volga Tatar jaqa, Qazaq, Qaraqalpaq žaɣa, Nogay jaɣa, Qïrghïz žaqa, Altay jaqa, Uzbek joqa, Yakut saɣa, Chuvash çyχa śɯχa 'collar'.

8. Kinship

It is known that kinship terms reflect the family structure within any given society. The kinship terms in Nostratic reflect exogamy, the division of the society into two exogamous moieties. Among the kinship terms we can see a clear-cut distinction between those referring to ego's own moiety and those of the other moiety.

Some kinship terms for the other exogamous moiety: *kälu‖ü 'a woman of the other moiety (of the same age or younger than ego)' (in the descendant languages the word denotes either a bride, or a female relative-in-law, or both), *küda 'male relative-in-law (of the same generation or younger than ego)', *śeʒA 'a male relative of the other moiety' (in the descendant languages: 'father-in-law', 'son-in-law', 'mother's brother', and sim.), *‚ħ|χ∇‚wäń|n∇

'relative [of a younger\the same generation] of the other moiety'. The word *n̥ɦu̥u̥ś∇ (or *n̥ɦu̥u̥sy∇) means 'woman of the other moiety', as well as 'woman' (general term).

Kinship terms for members of ego's moiety: *Hić̣c̣χ∇ (or *-ć̣c̣-, *-ɣ̣g̣h-) 'father, head of a family', *ʔediN∇ 'pater familias' (or 'owner'?), *ʔar∇ 'member of the clan, of the family'. The reconstruction of such kinship terms meets with difficulties for two reasons:

(1) Kinship terms for 'father', 'elder brother', 'elder sister', etc. (just as words for 'mother') often happen to be nursery words (as *ʔaba ~ *ʔapa 'daddy, father', *ʔemA and *ʔˤā'y∇ 'mother', *ʔaqa 'elder brother' [> Sem. *ʔaχ-]), which are built according to the same phonetic models (VCV and C_1VC_1V: aba, eme, ata, mama, papa, tata, nene and sim.) throughout the world (due to phonetic restrictions caused by the limited articulatory and auditory abilities of little children), so that phonetic similarity between such words in different languages is not necessarily due to their common origin: Gothic atta 'father' and Slavic *ot-ьcь 'father' are not cognates because Gothic t is not the etymological counterpart of Slavic *t.

(2) In the opposition 'the other moiety' vs. 'one's own moiety' the latter is unmarked. More than that, in words denoting relatives of one's own moiety the semantic feature 'kinship term' is unmarked, too. Therefore there is often no distinction between 'son' and 'boy', between 'daughter' and 'girl' (even in English: child is both a kinship term [his child] and a word denoting age without reference to kinship). This is true about certain proto-Nostratic words, too (e.g. *ʕoqu̥ʔ]∨ 'child, one's child, to beget, to bear a child').

[109] ***kälu̥|ü** 'a woman of the other exogamous moiety' ('female relative-in-law', 'bride') > **Ham.–Sem.:** Semitic *kall-at- 'daughter-in-law, bride' > Biblical Hebrew כַּלָּה kalˈlā id., Jewish Aramaic כַּלְּתָא kallǝˈṯ-ā, Syriac ˈkallǝˈṯā, Akkadian kallātu, (Assyrian dial.) kallatu ~ kallutu id., Ugaritic klt 'Braut, mannbare Tochter', Sabaic hklln (inf. of the causative verb) 'to marry (a girl)', Mehri kɜlōn, Jibbali ˈkɜˈlun 'bride, bridegroom', Harsusi kɜlōnɜt 'bride', kɜlānīn 'bridegroom', Soqotri ˈkɜlan 'bridegroom' **||** **Kartvelian** *°kal- 'young woman, maid' > Old Georgian kal-i 'maid', Georgian kal-i 'woman, daughter', (čemi \ šeni \ misi) kal-i '(my\your\his) wife' **||** **Indo-European** *ĝ̥lōw-/*ĝ̥lōw- 'brother's wife' > Greek γάλοως, Attic Greek γάλως 'husband's sister, brother's wife, sister-in-law' ǁ Latin glōs (secondary reinterpretation as an -s-stem, hence gen. glōris) ǁ Phrygian [Hesychius] γέλαρος 'brother's

wife' ‖ Slavic *zъlｆ (gen. *zъlьѵе) 'husband's sister' > Church Slavonic ζъλъΒΛ zъlъѵa, Serbo-Croatian zȁova; der.: Russian зо'ловка id.‖ **Uralic:** pre-proto-Uralic (acc. to Collinder) *kälü (but *käl∇-w∇, acc. to Itkonen and Rédei) 'female relative-in-law' > Finnish kälу 'daughter-\sister-in-law' ('Schwägerin, Frau des Bruders, Schwester des Mannes od. der Frau'), Estonian käli, (dial.) kälü 'husband's brother, husband's brother's wife' ⦙ proto-Lappish *kālɔ̄у- 'daughter-in-law, sister-in-law', *kālɔ̄у-ɛ̄nnē [*ɛ̄nnē 'mother'] 'sister-in-law' > Southern Lapp gaalцо-, Lule-Lapp kālō-ji(e)tnē 'wife of husband's brother or cousin', Norw. Lapp gālo-jædne 'sister-in-law' (of husband's brother's wife) ⦙ proto-Mordvin *kālə > Moksha-Mordvin келḱel 'Schwägerin', (dial.) kiyal id., Erzya-Mordvin ḱiyalo кияло 'ianitrices (wives of brothers)' ⦙ Permian *keli 'wife of husband's brother' > Udor & Luza Ziryene keѵ, Sïsola & Letka Ziryene kel, Kochevo Permyak, Yazvian kelуa id., Northern Votyak kaḷi 'wife of husband's brother (older than ego)' ‖ Teryugan Ostyak kiｆi 'wife's sister', Krasnoyarskiye Ostyak kitə 'daughter of wife's younger brother'; in Ostyak there is contamination of this root and the reflex of Nostr. *küda 'male relative-in-law', whence Teryugan Ostyak kiｆi, Obdorsk Ostyak kili 'husband of wife's sister'; Sosva Vogul kil 'wife's sister' ‖‖ Samoyedic *kelъ 'relative-in-law' > Tundra Nenets śēｆ, Forest Nenets śi̯e·ｆ 'wife of husband's brother, husband of wife's sister', Somatu Enets séḱiˀ, Bay Enets séri 'Schwager', Nganasan śalцŋ, sealцŋ 'Schwager (die Männer zweier Frauen)', Taz Sölqup šelｆ 'husband of wife's sister', Narïm Sölqup šäl 'свояк, Schwestermann, Mann der Schwester des Mannes, Schwager' ‖‖ Yukagir: Tundra Yukagir kelil 'the wife of the wife's brother or male cousin; the wife of the husband's brother or male cousin; the husband of the wife's sister or female cousin; the husband of the husband's sister or female cousin'‖ **Altaic** *kälin 'female relative-in-law, bride' > Turkic *k̄älin 'bride, son's wife' > Old Turkic kälin id., Chaghatay kelin, Old Xwarazmi Turkic kälin, Cuman kelin, Azeri ǵälin, Qarachay-Balqar gelin 'bride', Turkish gelin, Qazaq келiн kelĩn 'bride, son's wife', Qaraqalpaq kelin, Volga Tatar килен kilьn 'son's or young brother's wife; young woman', Türkmen, Gagauz gelin 'bride, son's wife, young married woman', Nogay kelin, Bashqurt kilьn, Khakas килiн kilĩn

'son's wife', Uzbek, Qïrghïz, Standard Altay kelin id., 'young married woman', East Turkic kelin 'son's wife, bride', Sarï-Yugur kelin ~ kʻelin ~ kʻelin 'bride, wife', Tuva kelin 'son's\younger brother's wife', Chuvash kin id. ||| Tungusic *kelin > Ewenki kзlin, Urmi Ewenki kзli, Lamut kзli (pl. kзlin-il), Orochi, Nanay kзli, Ulcha, Orok kзli / kзlin- 'husband of the wife's sister', Negidal kзli 'husband of a woman from wife's clan', Class. Manchu keli 'husband of wife's elder sister', 'brother-in-law', xexe keli 'wife of the husband's brother' (xexe means 'woman') || **Dravidian**: Northern Drav. *kallᵢiⱼ 'female relative-in-law' > Kurukh xallī 'father's younger brother's wife', Malto qali 'mother's sister' ◇ The meanings 'bridegroom', 'male relative-in-law' are demonstrably secondary and are due either to broadening of meaning (by eliminating the semantic element of female sex) or to back formation (as in Harsusi).

[110] ***küda** 'a man of the other moiety' (→ 'male relative-in-law') > **Uralic** (according to Illich-Svitych) *küδü > Finnish kyty 'husband's\wife's brother', Veps küdu, Estonian küdi, (dial.) küdü 'husband's brother' ⁞⁞ Ob-Ugric: proto-Ostyak *kū̄l∇ 'wife's sister's husband' ('wife's [younger] sister') > Obdorsk Ostyak kili 'wife's sister's husband', Vakh Ostyak küli id., niŋ-küli 'wife's sister' (niŋ- means 'woman'); in Ostyak there is contamination of this root and the reflex of Nostr. *kälu|ü 'a woman of the other moiety', whence Teryugan Ostyak ki4i, Kazïm Ostyak k̄i4i 'wife's sister's husband, wife's sister' || **Altaic**: Turkic kʻüδä-gü 'younger sister's husband, daughter's husband' (-gü is an adjectival suffix) > Old Turkic küδä:ᵢⱼ-gu, Chaghatay küyäv, Cuman küyägü 'daughter's husband', Old Qïpchaq küyägü, Xwarezmi Turkic küδägü 'bridegroom', Turkish güvey, Gagauz güvä, Türkmen, Qumuq, Nogay giyew, Uzbek куёв kuyɑw, Volga Tatar кияү kiyäü̈, Bashqurt кейәү kьyäü̈, Qaraqalpaq küyeü̈, Qïrghïz küyȫ, East Turkic küyoɣul 'daughter's husband, bridegroom' (East Turkic oɣul means 'son'), Qazaq küyeü̈ 'bridegroom', Standard Altay küyü, Khakas kizö, Tuva кудээ küdā 'daughter's husband', Chuvash kзrü (gen. kзrɑv-зn) id., 'bridegroom' ||| Mongolic *quda 'father of one's son-in-law or daughter-in-law' (in pl.: 'the heads of two families related through the marriage of their children') >

Middle Mongolian χuďa id. ('verschwägert, Schwager'), Class. Mong. quďa, Halha худ, Buryat худа, Monguor ḡuďā id., Kalmuck χudъ̆ 'people related through the marriage of their children' || ? **Kartvelian** *kwiŝ-al- / *kwiŝ-ļ- 'wife's sister's husband' > Georgian kᴠisl-, Georgian (Mtiuluri & Mokheuri dialects) kᴠiseli, Megrelian kᴠišil-, Svan me-kwš-ēl, Lentekh Svan mo-kwš-äl ¶¶ According to sound laws we expect Kartvelian *kwid-. The observed Kartv. stem *kwiŝ-al- may have originated from the genitive **kwid-iŝ- + suffix *-al- (with a cluster simplification *-dŝ- > *-ŝ-).

[111] *śeӡA 'a relative of the other moiety' ('father\son-in-law', 'mother's brother', and sim.) > **Kartvelian** *siӡe- 'son-in-law' > Georgian siӡe-, Megrelian si(n)ǯa- ꜷ sinda id., Laz siӡa- id., 'bridegroom', Svan čīӡe 'son-in-law' || **Ham.–Sem.:** Cushitic: East Cush. *s∇z- 'relative-in-law' > Somali sóddog 'father-in-law', sóddóħ 'mother-in-law', Rendille seyyoħ ~ soyyoħ 'mother-in-law', seyyóħ 'father-in-law', proto-Boni *sìddáħ 'mother-in-law', 'sister-in-law' > Boni siddah ꜷ soddóħ id., Oromo sodd-a 'in-law' (↫ Arbore soddá id.), Arbore soh id., Gollango soqo 'son-in-law' ||| ?σ Egyptian sӡ.ty 'Kind, Zögling' || **Uralic** *ćečä 'uncle' > Finnish setä 'father's brother', ? Estonian (dial.) sedi 'mother's brother' | proto-Lappish *ćēcē 'father's brother' > South. Lapp tjiedsie, Lule-Lapp tjiehtiē, tjähtiē, Norw. Lapp čæcce, Kildin Lapp čiecč 'father's younger brother' | Erzya-Mordvin čiče 'elder brother-in-law (sister's husband)', Moksha-Mordvin ščava ~ śćava 'mother's mother', ščäťa 'mother's father' | proto-Cheremis *čüčə ~ *čečä > Lowland Cheremis чӱчӱ čüčü, Highland Cheremis чызчы čəčə 'mother's brother', East. Cheremis čüčö ~ tüčö | proto-Permian *čɔž 'mother's brother' > Ziryene чож ćož, Letka & Udor Ziryene čož, Votyak чужмурт čužmurt id., чужбубы čužbub‡ 'mother's father' || Lower Konda & Sosva Vogul šäš, Sosva Vogul sasiɤ 'uncle', Pelïmka Vogul šäššä-m 'my uncle' ||| Samoyedic *cicä 'mother's younger brother' > Tundra Nenets тидя, Obdorsk dial. ćíde, Nganasan (der.) t‡tída, Taz Sölqup ti'tä 'mother's younger brother' ¶¶ In the prehistory of Uralic we may suppose an assimilation and dissimilation of sibilants: ≈ *śeӡA > **ćecA > *ćečä.

Agaw *ʼŋʼs-at- 'woman' > Bilin ū's-ʌrī adj. 'female', pl. ū's-aɯ ~ ú's-ō, Khamir 'ōs-rē id. ||| Central Chadic: Mandara gr.: Dghwede níšè, Gava núsà, Guduf nɔ́sʌ̀, Glavda nùsà 'woman' ¦ Tera nušu id. || **Kartv.** *nusa 'son's wife' > Laz nusa, Megrelian nosa id., Old Georgian nusa-dia 'uncle's wife' (lit. 'grand daughter-in-law') ¶¶ The Kartv. word may be either a loan from IE or an ancient Kartv. inherited lexeme. In the latter case *nusa must go back to pre-Kartv. **nuś∇ < **nuśya < **nusya < *nǀn̥uysa or *nǀn̥üysa || **Indo-Eur.** *snuso-s 'son's wife' > Crimean Gothic schnos, Old High German snur, Anglo-Saxon snoru, Old Norse snor ~ snør id. ¦¦ Greek νυός id. ¦¦ Armenian nu id. ¦¦ Latin nurus, -ūs id. (morphological reinterpretation on analogy with socrus, -ūs 'mother-in-law') ¦¦ Old Indian snu'ṣā 'son's wife' ¦¦ proto-Slavic *snъxa id. > Old Church Slavonic СNЪХА snъxa, Russian сно'ха ¦¦ Albanian nuse 'bride' ||| ?? Hittite nasarti/a- 'concubine'. ¶¶ The unexpected initial *s may be explained by phrasal metanalysis: in phrases *...-(o)s nuso-s '(somebody)'s son's wife' (where *-(o)s is the genitive ending of the preceding noun) *-s was reinterpreted as belonging to the following noun: *...-(o)s nuso-s > *...-(o)s snuso-s.

[114] *Hić|cχ∇ or *-ć|c-, *-ɣ|g|h- 'father, head of a family' (→ or ← 'master, lord') > ? **Ham.-Sem.**: Semitic: Ge'ez ʔagzīʔ 'lord' (? ⟼ Ge'ez √gzʔ v. 'dominate, master') || **Indo-European**: Hittite isxa ~ esxa 'master, lord' || **Uralic** *ićä 'father' > Finnish isä, Estonian isa id. ¦ proto-Lappish *ȝćē 'father' > North. Lapp ač̣ʼče, Skolt Lapp eč̌č̌ʼ, Kildin Lapp ėž̌č̌ʼ, Ter Lapp yi͡ečče id. ¦ Highland Cheremis ȝȝä, Ufa Cheremis iȝa, Malmïzh dial. iźa 'elder brother; father's younger brother' ¦¦ Lower Konda & Pelïmka Vogul āś 'mother's brother' ¦ Old Hungarian ős 'grandfather', Hungarian ős 'ancestor' ||| Samoyedic *eysä 'father' > Tundra Nenets нися̆, Forest Nenets ńi͡eš:aä̆, Nganasan jase, 'десы, Enets ese, Taz Sölqup ȝsɨ id. || **Altaic**: Turkic: Sarï-Yughur ise 'owner, master (хозяин)' ||| Mongolic *eȝen 'lord, master' > Middle Mongolian eȝen 'seigneur, maître; Herr', Class. Mong. eȝen, Halha эээн 'lord, master, ruler, owner'.

[115] ***ʔediN∇** 'pater familias' (or 'owner'?) > **Ham.-Sem.:** Semitic *ʔadān- 'lord, pater familias' > Hebrew ʔāˈḏōn 'lord', Phoenician ʔdn ʔadōn (> Greek ῎Αδων-ις), Punic λαδουν (with λ- 'to') 'to the lord', Ugaritic ʔadn, [in Akkadian script] adānu 'father', der.: Eblaite a-da-na-du ʔadāntu(m) 'signoria, padronanza', with the feminine suffix *-at-: Phoenician, Palmyrian ʔdt (<*ʔadattu < Semitic *ʔadān-atu) 'lady' ||| Egyptian idnw 'Vertreter, Verwalter', idn 'vertreten, verwalten' || **Altaic** *edin 'master, lord, owner' > Turkic *eδi 'lord, host' > Old Turkic iδi 'lord', [Qutadgu Bilig] idä id., Qïzïl äzi 'Chinese emperor', Lobnor idi 'host'||| Mongolic *eʒin (< *edin) > Middle Mongolian eʒen 'owner, lord, ruler, master', جينو Ī eʒin-ü '(of the) owner', Class. Mong. eʒen, Halha eʒen 'owner, lord', Kalmuck eʒŋ id., Dagur ǯǯin 'lord, master, owner, king' ||| Tungusic *edin 'husband' > Ewenki, Negidal ɜdī, Lamut, Orok ɜdi, Ulcha ɜdi(n-), Nanay ǯǯi id., Orochi ɜdi 'male animal, husband'.

[116] ***ʔemA** 'mother' > **Hamito-Semitic:** Semitic *ʔimm- id. (pl. *ʔimmāˈh-āt-) > Hebrew אֵם ˈʔem / -אִמ ʔimm- (ʔimˈm-ī 'my mother'), pl. ʔimmāˈhōṯ, Phoenician ʔm, Ugaritic ʔum *ʔumm-, pl. ʔumht, Jewish Aramaic, Syriac ʔimˈm-ā, Arabic ʔumm-, Epigraphic South Arabian ʔm, pl. ʔmht, Ge'ez ʔam, Mehri ħ-ām, indef. ʔēm, Harsusi ħ-ām, Central Jibbali ˈʔɛm, Soqotri ʔem- (with pronominal suffixes), Ge'ez ʔamm, pl. ʔammāt, Akkadian ummu(m) 'mother' ¶ The variant with u is due to the assimilating influence of mm ||| Berber ≈*yimmā 'my mother' > Kabyle, Beni-Menacer, Jerba, Sened yamma, Ghadamsi yamma~imma, Tashelhit yĕmma~imma, Beni-Snus, Beni-Iznasen, Rif, Srayr Senhazha, Kabyle imma 'my mother'; the form *yimmā may go back to *y- 'my' + *ʔimm∇ 'mother' ||| ? Highland East Cush. *ama > Burji amá~āmá 'mother, woman, wife', Darasa, Sidamo, Alaba ama, Hadiya ama, amoʔo 'mother', ama(ti) 'mater familias', Kambatta amata, amayye (vocative) 'mother' ¶ This Highland East Cush. word may be an independent Lallwort without etymological connection with the Semitic and Berber words ||| ? Chadic: Central Chadic: Margi ámà, Kilba ama, Wamdiu ʋmà ‖ East Chadic: Kera àmá 'mother'; this Chadic word may likewise be an independent nursery word || **Uralic** *emä 'mother, female' > Finnish emä 'female, mother, womb', emäsika 'sow',

Estonian ema 'mother, womb', proto-Lappish *ēmē 'womb' > South. Lapp yiemie id. ‖ Old Hungarian eme 'female (animal), Hungarian (dial.) eme (acc. emét) 'sow', der.: Hungarian embër 'person', (dial.) 'man' ||| Samoyedic *emä 'mother' > Tundra Nenets небя ńeb_e·, Forest Nenets ńeḿe, Somatu Enets ē, (+ pron. suffix 1 sg.) ēb_ō, Nganasan ńame ┆ Taz Sölqup эmɨ, Lower Taz Sölqup ämä, Turukhansk Sölqup ēmɨ 'mother'┆ Koibal имадь, Mator иммеда 'his mother', имамъ 'my mother', Taigi емма, emme 'mother' ‖ **Altaic** *eme 'mother, woman, female' > Turkic *ämä 'mother, female' (> 'old woman') > Qïrghïz eme 'old woman', Chuvash ama 'mother, female' ||| Mongolic *eme 'woman, female' > Middle Mongolian eme, eme gü'ün 'woman, wife' (gü'ün means 'person'), Class. Mong. eme 'woman, wife, female', Halha em 'woman', Buryat eme id., Class. Oirat eme 'woman, female, lady', Dongxiang эmз(kun), Baoan эmз (kuŋ) 'woman', Monguor imu in χara imu ('black woman'), ritual name given by a girl to herself in front of her parents the day of her marriage, Dagur emehe aw- 'to marry (a woman)' ||| Tungusic *em⌈e⌉ 'mother, woman, female' > Ewenki эmugdз 'female elk', Solon e'mo 'mother', emɪ'ge 'wife', Kur-Urmi Nanay эmхз 'mother-in-law', Class. Manchu eme 'mother', emxe 'wife's mother', emeke 'husband's mother', Sibe Manchu eme 'mother', emχe 'husband's mother', emhe 'wife's mother' ||| Korean: Middle Korean ám, Phyöngyang Korean am ◇ Words shaped as a(m)ma in individual IE languages (Old High German amma 'mother', Old Norse amma 'nun', Gheg Albanian 'amë 'mother'), Elamite am-ma 'mother' and Drav. *amma 'mother' (> Tamil ammā, Malayalam, Kannada, Telugu, Tulu amma, Kolami amma, Brahui ammā 'mother', Konda ama 'grandmother', Pengo, Manda, Kui ama 'father's sister', Kuwi amma 'aunt') are unlikely to belong here, they are better explained as independent Lallwort-creations.

[117] *ʔ⌈ä⌉y∇ (or *h⌈ä⌉y∇?) 'mother' (originally a nursery word) (→ 'female'): **Ham.-Sem.:** Cushitic *ʔay(y)- > East Cushitic *ʔāyy- 'mother' > Somali āy-o 'stepmother', Rendille 'áy-o 'mother' (vocative), Boni ā'y-ô, Baiso ā ~ āy-o, Oromo āyy-ō, Konso āy-ā 'mother', Saho āy-a 'older sister', Hadiya ayy-a 'sister', ay-minē 'mater familias', Burji āy'y-ē 'mother,

mother's sister, father's brother's wife' ‖ South Cushitic: Iraqw ayo,
Alagwa, Burungi iyo 'mother' ‖ ? **Indo-Eur.**: proto-Germanic *aiθī
'mother' > Gothic aiþei id., Old Norse eiða id., Old High German
fuotar-eidī 'Amme', Middle Low German eide 'mother'; Germanic *aiθī
↬ Finnish äiti, Estonian eit (gen. eide), Lule-Lapp eiti, Norw. Lapp
æi'de 'mother' ‖ ?? **Uralic**: Samoyedic: Kamassian iyả, yả, ya, Enets ê?,
e? 'mother' ‖ **Dravidian** *āy 'mother' > Tamil āy, āyi, Kannada āyi,
Kolami a˙,y, Gadba āya~aya, Gondi ayal, Konda, Pengo, Manda aya, Kui aịa
'mother', Kuwi a(ị)ya 'woman', Kurukh ayo 'mother', Malto ayya 'my
mother'.

[118] ?? ***?aba ~ *?apa** 'daddy, father' (a nursery word) > **Ham.-Sem.**:
Semitic *?a'b- 'father' (nom. *?a'b-u,-um, acc. *?a'b-a, -am, gen. *?a'b-i, -im)
> Biblical Hebrew 'ʔāḇ, st. c. ?ᵃḇī, st. pronominalis (with pron. suffixes) —
?a'ḇī-/?ᵃḇī- (e.g. ?a'ḇī-kā 'thy father', ?ᵃḇī-'kɛm 'your (pl.) father'),
Phoenician ?b, st. c. ?abī, Ugaritic ?,b, Biblical Aramaic אב * *'?ab, st.
pron.: ?ᵃḇūḵ 'thy father', Jewish West Aramaic ?ab'bā, Syriac ?abbā,
Arabic ?ab-, st. c. ?abū / ?abā / ?abī, st. pron. ?abū- / ?abā- / ?abī-, Sabaic
?b, Mehri def. 'ħayb, pl. 'ħayb, indef. '?īb, Harsusi ħayb, pl. ħōb, Jibbali C
?iy, Soqotri ?iyf-, Akkadian abu(m), with personal suffixes: abū-, abī-
‖‖ East Cushitic *?ābb-/*abb- 'father' > Afar abba, Somali ãbbe, Rendille
aba, Baiso abbo, Oromo ábba?, Konso ãppa, Gidole áppā, Gawwada áppa; this
root may be the source of East Cushitic *?ab-(-uyy-, -iyy-) 'maternal uncle'
(derived from the word for 'father', cp. Latin patruus?) > Afar abo, abu,
Somali ab-tí, Oromo abuyya, Konso abuyyắta, Gidole apa, apuyy, Dulay
apuyya, apiyya, Burji abuyyắ ‖‖ Chadic ≈*?∇b- (~*?ap-) 'father' > West
Chadic *?∇b/p- 'father' > Hausa ùbá, Tsagu òbán, Pa'a ábatì, ábanáni,
Jimbin, Diri àbá, Jimi abawa, Geji ábà, Ngizim àfʒk, Bade àfáŋ ‖ Central
Chadic: ? Nzangi ābá (independent creation as a nursery word?), Buduma
abú, àpá, àpʒ, Logone ?àbà, Musgu ap, Musgum-Pus àpī́, Zime-Batna ?ʒbà
‖ East Chadic: Somray ?àb, Tumak ɔ̀wɔ̀, ? Barein ãba (independent
creation?) ‖ **Altaic** *āba ~ *āpa 'father, grandfather' > Turkic *aba 'father,
uncle, father's father' ('bear') > Old Turkic aba 'father, ancestor, bear',
Chaghatay aba 'father', Türkmen (dial.) aba, Turkish (dial.), aba, appa,

Azeri (dial.) aba, East Turkic (Ili) aba 'father', Khakas oba, Chuvash уба ub_a 'bear' ||| Mongolic *aba 'father' > Class. Mong. abu, Halha ав, аав 'father, grandfather', esp. applied to an old father (endeavouring), Class. Oirat-Mongolian āba 'father, daddy', Kalmuck aaв āвъ id., Monguor āb_a, Dongxiang aba, Baoan ābe; der.: Mongolic *aba-ɣay 'father's younger brother' > Middle Mongolian abaɣa 'paternal uncle', Class. Mong. abaga id., Halha авга id., Class. Oirat abaɣa id., Kalmuck aβɣъ id., Monguor awu 'father's younger uncle' ||| Tungusic: Negidal apa 'grandfather' ||| Korean *àpí > Middle Korean àpí 'father' **|| Dravidian** *appa 'father' > Tamil appaṇ, appu 'father', Malayalam appan, Kannada appa, Kodagu appə 'father', Tulu appa, appæ affix of respect added to proper names of men, Telugu appa 'father', Gondi āpōṛaḷāl 'father', ? maịpo 'my father', ? mi-apo 'thy father', Konda aposi 'father' (with reference to the 3rd person) ◇ The commmon origin of the Ham.-Sem., Alt. and Drav. stems is questionable, since each of them may be an independent nursery word creation. The Lallwort origin may be responsible for the variability *-b- ~ *-p-.

[119] ***ʕoɡuḷ]ʔ∨** 'child, one's child, to beget, to bear a child' > **Ham.–Sem.:** ? Sem. *'ʕiɡul- 'calf' ||| Cush. ≈*√ʔḳʷl (or *√ʔḳl) id. > Agaw *qʷɜr-/ *ʔɜqʷɜr- v. 'beget, child' (< Early Agaw **√ʔḳʷl?) > Bilin ʔɜxʷra 'boy', f. ʔɜqʷra 'daughter', pl. qʷɜr 'children', Khamir (ɜ)xʷɜr 'child', pl. ɜqʷɜr, Kemant xʷɜra 'child', Bilin ʔxʷär-, Khamir ɜxʷɜr- v. 'bear, beget'; Early Agaw **√ʔḳʷl-↦ Tigray ḳʷɐlʕa 'child' || Highland East Cush. *ḳal- v. 'give birth' > Sidamo, Kambatta ḳal-, Hadiya ḳār- v. 'give birth' (of animals), Burji ḳal- v. 'give birth', ḳála 'child' **|| Kartu.:** Lashkhi Svan ɡlaw- 'child, boy' **|| Altaic:** Turkic *oɡul 'offspring, child' ('male child') > Old Turkic oɣul 'offspring, child', Chaghatay oɣul 'son', Türkmen, Azeri, East Turkic, Sarï-Yughur, Lobnor, Halaj oɣul, Turkish oğul, Qïzïl oɣïl, Uzbek uɣil, Qïrghïz, Altay ūl, Qaraqalpaq ul, Qazaq ŭl, Volga Tatar, Bashqurt ul, Tuva ōl, Tofalar ōl, Yakut u͡ōl, Old Bulghar اوَل ∇ωal, Chuvash ывăл ıvъl 'son', Khakas (Sagay, Kachin) ōl, Qïzïl oɣïl 'young man, son' **|| Gilyak:** Amur Gilyak oɣla 'son'.

[120] ***ʔarⱱ** 'member of the clan' > **Ham.-Sem.**: Semitic *°ʔar₍ⱱ₎y- > Ugaritic ˀₐry 'relative, member of the clan' ||| Egyptian ỉry 'belonging to; comrade', Demotic Egyptian ỉry 'comrade', Coptic: Bohairic ēr 'comrade, friend', Sahidic eriw, Bohairic ariu, eriu 'comrades' ||| Cushitic: Beja ʔaraw 'friend' || **Indo-European**: Narrow Indo-European *aryo- 'member of the tribe' > Old Indian 'aryah 'master of the house', ar'yah '(hospitable) lord', 'ār(i)ya- 'an Aryan person', Avestan airyō, Old Persian ariya- 'Median, Aryan (person)'; proto-Indo-Iranian *arya- ↦ Finno-Ugric (or Finno-Permian) *orya 'slave' > Finnish orja 'slave', Estonian ori 'slave, bondsman' ¦ Erzya-Mordvin uŕe, Moksha-Mordvin ype uŕə 'slave, servant' ¦ proto-Permian *ver 'slave' ('vir') > Old Permian wer 'servant, slave', Ziryene pi-ver 'husband's brother' (pi 'son'), Ziryene (dial.) ver-ćeri 'male fish' (ćeri 'fish'), Votyak var, war 'slave, servant' ¦¦ Old Irish aire 'free person' (> 'chief, prince') || ? **Ural.**: Ugric *arⱱ or *arwa 'relative belonging to one's mother's clan', 'mother's (younger) brother' > Old Hungarian ara 'brother', (early 18th c.) 'Schwiegertochter', Hungarian ara 'bride' (attested from 1792; a lexical innovation in the framework of the Hungarian 'language renewal') ¦ Ob-Ugric: Kazïm Ostyak wɔr-ti 'mother's younger brother, his male descendants, his son', Northern (Obdorsk) Ostyak or-ti, or-di 'mother's brother'; Middle Lozva Vogul oår, Northern Vogul å:r 'mother's relative'.

9. The realm of the supernatural

Once I was asked by a journalist: 'Is there a Nostratic word for God?'. I had to disappoint the gentleman: in the Nostratic lexical stock this concept has not been detected. The words for gods in the descendant languages usually go back to the name of a natural phenomenon associated with the deity in question. Indo-European *dyeus (> Greek Ζεύς, Old Indian dyaus 'god', etc.) originally means 'daylight', *dei̯wos (> Latin deus, Old Indian dēvas, Lithuanian diẽvas 'god') goes back to an adjective 'that of the daylight'. Finno-Ugric *yuma (whence Finnish jumala, Estonian jumal, Highland Cheremis yama 'God') originally means 'sky' (> 'heaven'), whence Ufa Cheremis yumo 'sky'.

But Nostratic is rich in words denoting magic activity:

[121] ***ʔarba** 'to make magic, cast spells' > **Ham.-Sem.:** ? Sem. *√ʔrb v. 'be cunning' > Biblical Hebrew אָרַב √ʔrb v. 'lie in wait, prepare an ambush' (← *v. 'be cunning'), Official Aramaic ארב ʔrb 'ambush', Safaʼitic mʷrb 'intrigant, comploteur', Thamudic ʷrb 'se mettre en embuscade' || **Uralic:** Finno-Ugric *arpa > Finnish arpa (gen. arvan) 'lot, magic stick or any other magic tool for finding hidden things, soothsaying, etc.', arpa-mies 'soothsayer' (mies is 'man'), arpo- v. 'cast lots', Estonian arp 'lot, magic', Livonian aȓbī 'witch', proto-Lapp *vōrpē > Norwegian Lapp (after Friis) vuorbbe 'sors secunda, fortuna; anulus oricalchi, in membranam tympani magici, quoties pulsabatur, imponendus', Norw. Lapp vuoriˌbe 'each of the two or more pieces of wood, stones etc., used by persons who are going to cast lots about something; lot; destiny', Lule Lapp vuoriˌpē 'Glück, Los, Geschick' || **Altaic:** Turkic *arba- v. 'make magic, cast spells' > Old Turkic arva-, Chaghatay, Qïrghïz, Qaraqalpaq, Bashqurt, Khakas arba-, East Turkic arba-ᵈarva-, Sarï-Yughur arva- id., Qazaq arba- v. 'tempt, seduce, try to win smb. over by deceit', Yakut arbā- v. 'flatter, exaggerate', Old Turkic arviš 'a magic spell, or charm' (⤳ Votyak urveś, urbeć 'remedy for evil eye' ?), Chaghatay arviš-čɪ 'sorcerer' (a Turkic — most probably, Bulghar — word is probably the source of Votyak urveś, urbeć 'Waldgeist; a person inflicting illness by magic', Hungarian orvos, [dial.] óros, órvas, órvos, urus 'physician', as well as of Bulgarian врач 'sorcerer' and Russian врач 'physician').

[122] ***ʕˈaˈl∇** 'to burn (esp. sacrifices), use magic means (sacrifices, magic formulae etc.) to produce a particular result' > **Ham.-Sem.:** Sem. *°√ʕlу v. 'infringe, act perversely' > Syriac √ʕlу in ʔaʕlī v. 'act perversely', ʕɛlˈʲā 'scelus, injuria'; Sem. *√ʕlʷ v. 'burn a sacrifice' > Biblical Hebrew עֹלָה ~ עוֹלָה ʕōˈlā, Biblical Aramaic עֲלָיָן ʕălāyān 'burnt-offering, holocaust', Imperial Aramaic (Elephantine) עלוה ʕlʷh, Samaritan Aramaic עלה ʕlh, Jewish Aramaic עֲלָתָא ʕălātā 'sacrifice', Syriac ܥܠܬܐ ʕalātā 'offering, holocaust, sacrifice; altar', Palmyrene עלתא ʕltʔ 'altar' || **Indo-European** *ˈHʲel- (≈ *ˈHʲal-) v. 'burn, burn sacrifices' > Old Indian alātam 'a fire-brand, coal' (← *'burnt') || ? Greek [Hesychius] ἀλάβη 'coal' || Latin altāria n. pl. 'altar (for

sacrifice)' (< *al-t-āli-), ad-oleō 'I am burning (a sacrifice)', Umbrian uřetu 'in order to burn' (< Italic *ol-) ¦¦ Swedish ala v. 'flame' ‖ ? **Kartvelian** *₁h₁al- v. 'flame', 'flame' > Georgian al-i 'flame', al- (1 sg. ∨-a-al-eb) 'aufflammen lassen', al-d-eba 'flammt auf', Inglouri Georgian hal- v. n. 'flame, burn', Svan häl ⱸ hal 'flame' ‖ **Uralic**: Finno-Ugric *al∇- v. 'exercise magic forces, sacrifice' > Old Hungarian áld- v. 'sacrifice', Hungarian áld- v. 'bless', áldoz- v. 'sacrifice', áldozás 'holy communion', proto-Ostyak *al- > Vakh Ostyak al∔l- v. 'curse; to scold', al∔ltə köl 'Fluchwort, malediction', al∔m- v. 'curse, call down curses upon' ¦ Erzya-Mordvin alta- v. 'promise, devote', (acc. to Jevsevjev) v. 'doom' ¦ Cheremis ulδa-, ulte- v. 'prey, pronounce a prayer' ‖ **Altaic**: Turkic *āl > Old Turkic āl 'device' (esp. 'dishonourable device'), 'deceit, guile, dirty trick', Turkish (dial.) al 'ruse, trick', Türkmen āl id., Azeri (dial.) al 'ruse, deceit, a lie', Chaghatay, Uighur al 'Schlauheit, List, Betrug, Strategie'; ? Turkic *alqa- v. 'bless, praise, conjure (supernatural spirits)' > Old Turkic alqa- v. 'praise' (both in a religious and the ordinary sense), v. 'bless', Qumuq, Qïrghïz, Qazaq alqa-, Tuva alɣa- v. 'bless', Standard Altay alqa- v. 'bless, praise, thank', Khakas alɣa- v. 'bless, thank', Yakut alɣa- v. 'bless, praise, pray, conjure (supernatural spirits), cast a spell' ↔ Ewenki alga- v. 'bless, pray', alga 'blessing' ‖‖ ?? Korean alɔin alɔin hạda 'to deceive, adulate'.

[123] *ŝoṭ∇ 'to exercise magic force' (> 'to curse, bless') > **Ham.–Sem.**: Sem. *√ŝwṭ (> *√ŝyṭ) v. 'harm by magic' > Arabic šiwāṯ- ~ šuwāṯ- 'calomnie, injure', √šyṯ (2nd form) v. 'expose (smbd.) to death, to ruin'; Semitic *√ŝṭn v. 'bear ill-will, be hostile, attack, bear ill-will by words, accuse' > Biblical Hebrew √ŝṭn id., שָׂטָן ŝā'ṭān 'adversary' (> 'Satan'), Aramaic √sṭn v. 'be hostile', Arabic √šṭn v. 'oppose (smbd.)'; Semitic *√ŝṭm > Arabic √šṭm v. 'insult, revile, vilify' ‖‖ Egyptian šṭm 'heftig werden (beim Sprechen), verleumden' ‖ **Uralic**: Finno-Ugric *ŝoṭᵃ 'magic) force', v. 'curse' (> 'cause damage to'), v. 'bless' > ? Finnish sota, Estonian sõda 'war, battle', Finnish soti-, Estonian sõdi- v. 'wage war' ¦ proto-Mordvin *śūdъ- > Erzya-Mordvin śudo-, Moksha-Mordvin śudъ- v. 'curse' ¦ Eastern Cheremis šu'δem v. 'curse, invoke curses (on smbd's

head), execrate', Lowland Cheremis ˈšuδъš 'curses, execration', Highland Cheremis šuδъš 'damnation, invocation' ‖ proto-Ob-Ugric *šōt > proto-Vogul *šāt 'luck' > Tavda Vogul šāt, Northern Vogul sōt ⁓ Ss sɔ̄t; proto-Ostyak *sɔt/*sot 'force, power' > Kazïm Ostyak sɔt, Obdorsk Ostyak sot ‖ **Dravidian** (ambiguous) *cɔṭṭə 'insinuation, disparaging remark; defect, blame' > Tamil coṭṭu 'defect, insinuation', Malayalam caṭṭu 'fault', Telugu soḍḍu 'defect, fault; blame, imputation' ¶¶ The Drav. word may alternatively belong together with Kartv. *°c̣|codw- v. 'sin'.

[124] ≈≈*tul∇ 'to tell (a story), pronounce magic\ritual texts' > **Ham.-Sem.**: Semitic *°√tly, *°√twl > Arabic tuwal- 'magic art, witchcraft' ‖‖ Berber *tlH > Shawiya utla v. 'speak, talk' ‖‖ ? Cushitic: East Cush.: Somali talo 'parere, opinione; consiglio, proposta', tali- v. 'decide, advise', Somali tálo 'decision' ‖ South Cushitic: Kwadza tulatu 'court case' ‖ ? Agaw: Bilin, Kwara telā, Khamir ṭelā, Kemant tilā 'medicine, drug (Arznei)' ‖ **Indo-Eur.** *del- > Hittite talliya- v. 'invoke (gods)', Lycian B tali '(heathen) priest' ‖‖ Germanic *talō 'narration', *taljan 'to tell, narrate' > Old Norse tala 'speech, conversation', Anglo-Saxon talu 'narration' (> English tale), Middle Low German tale 'speech', Middle Dutch tael, tale 'speech, language', Old High German zala 'Bericht'; Old Norse tala 'to speak, talk', Anglo-Saxon talian 'rechnen, meinen', tellan 'to narrate', English tell‖ **Uralic**: Finno-Ugric *°tult∇ 'witchcraft' > Hungarian táltos 'sorcerer, shaman; magic horse' ┆ Ob-Ugric *t∇:lt > proto-Ostyak *tɔlt/*tolt > Northern Ostyak tolt 'giant' (← 'sorcerer'), toltn, tolten 'mit Zauberkraft', Vasyugan Ostyak tolt 'fever', Kazïm Ostyak tǫɬt 'Hilfe; Linderung (bei einer Krankheit, in der Armut)', tǫɬta 'without effort, without noise; suddenly'; proto-Vogul *tūlt > North. Vogul tūltən, tūltnə 'leicht, einfach' (← *'by witchcraft').

In the framework of one book it is hardly possible to refer to the Nostratic perspective of *all* aspect of life and culture. If there are any desiderata as to specific questions or fields, I shall be happy to do my best to satisfy the readers' interest.

Phonetic Correspondences

Main Phonetic Correspondences of Consonants in the Nostratic Languages

Nostratic consonant chart

Stops and affricates			Fricatives		Central approximants	Nasals	Lateral sonants	Vibrants
Voiced	Voiceless	Emph.	Voiced	Voiceless				
b	p	p˺			w	m		
d	t	t˺				n	l	
						ṅ = ŋ	ļ	r
ʒ	c	c˺	z	s				
ǯ	č	č˺	ž	š				
ʒ́	ć	ć˺	ź	ś	y	ń	ĺ	ŕ
ʒ̂	ĉ	ĉ˺	ẑ	ŝ				
ǥ	k	k˺				ŋ		
g	q	q̣	ɣ	χ				
				ħ (= h˺)	ʕ			
	ʔ							
				h				

Symbols in the chart: affricates: ʒ = d͡z, c = t͡s, ǯ = d͡ž, č = t͡š, ʒ́ = d͡zʸ, ć = t͡sʸ; lateral obstruents: ʒ̂, ĉ, ĉ˺, ẑ, ŝ — lateralized ʒ, c, c˺, z, s; palatalized consonants: ʒ́, ć, ć˺, ź, ś, ń, ĺ, ŕ = palatalized ʒ, c, c˺, z, s, n, l, r; uvular stops: ǥ, q, q̣ = uvular g, k, k˺; uvular fricatives: χ = Spanish j, ɣ = Arabic غ; epiglottal (pharyngeal) consonant: voiceless ħ (= h˺ = Arabic ح), voiced ʕ (= Arabic ع).

In the following table of sound correspondences the symbol '−' denotes zero. The sign ':' symbolizes the lengthening of the preceding vowel, '⊥:' denotes lengthening of the consonant. The sign '⊥ᵎ' denotes glottalization of an adjacent consonant, but in Nostratic reconstruction it denotes emphatic consonants without specifying the phonetic nature of the emphasis, '⊥̦' is uvularization of the consonant, '⊥ᶜ' is its tensification (transformation of a lax consonant into a tense one [fortis]), '⊥̣' is its devoicing, '⊥̀' is its retroflexivization, '⊥ʸ' is its palatalization. The symbol ° denotes here labialization of the adjacent vowel, the sign ¨ denotes its palatalization. Within conditioning formulas, '_U' means 'before a labial vowel', '_E' means 'before a palatal vowel'. IE +*(s)- denotes the addition of the initial IE *s mobile as a reflex of N word-middle palatal elements. The symbol '**' is used for working hypotheses: in cases when we have sufficient factual confirmation for a group of N phonemes only rather than for each individual N phoneme, e.g. in the case of *n and *ń, where a distinction is possible only if the phoneme is represented in Ostyak, so that in daughter languages without *n|ń-roots common with Ostyak we cannot find formal proof of representation of N *n and N *ń separately, but only representation of unspecified *n|ń. In such cases we suppose (as a working hypothesis) that both phonemes (in the case described *n and *ń) are reflected in the same way, which is symbolized by '**'. The letter 'N' symbolizes an unspecified non-labial nasal consonant, 'L' is an unspecified lateral sonorant. IE *G = *g|gʷ|ḡ, *Gʰ = *gʰ|gʰʷ|ḡʰ. M *G = *g|*g, *K = *k|q.

The following abbreviations are used: N = Nostratic; S = Semitic; Eg = Egyptian; B = Berber; K = Kartvelian; IE = Indo-European; U = Uralic; T = Turkic; M = Mongolic; Tg = Tungusic; D = Dravidian.

N	S	Eg	B	K	IE	U	T	M	Tg	D
*b-	*b	b	*b	*b	*bʰ	*p	*b	*b	*b	*p
*-b-	*b	b	*b, *β	*b	*bʰ	*w, ⊥̣_/*p	*b	*b	*b	*v
*p-	*p	f	*f	*p	*p, *b	*p	*p, *b	*φ	*p	*p
*-p-	*p	f	*f	*p	*p, *b	*p, √	*p	*b, *β>*ɣ	*p	*v
*pᵎ-	*p	p	*f	*p, *pᵎ	*p	*p	*h >*−	*φ	*p	*p
*-pᵎ-	*p	p	*f	*p, *pᵎ	*p	*pp	*p	*b	*p	*pp
*d-	*d	ḍ	*d	*d	*dʰ	*t	*ǰ	*d, _i/ *ʒ	*d	*t
*-d-	*d	ḍ	*d	*d	*d	*δ	*δ	*d	*d	*t/tt
*t-	*t	t	*t	*t	*d	*t	*ṯ	*d, _i/*ʒ	*d	*t
*-t-	*t	t	*t	*t	*d	*t	*t	*d	*d	*t/ṭṭ, *t/tt
*tᵎ-	*tᵎ,*t	ḍ	*g	*tᵎ	*t	*t	*tᶜ	*t,*t i/ *ʒ		*t

N	S	Eg	B	K	IE	U	T	M	T g	D
*-t̕-	*t̕,*t	d,t	*ḍ,*t	*t̕	*t	*tt	*t	*t	*t	*tt/t
*g-	*g	g,ӡ	*g	*g	*gh, *ĝh, *gʷh	*k	*k̄,*kʿ	*g,*g	*g	*k
*-g-	*g	g,ӡ	*g	*g	*gh, *ĝh, *gʷh	*ɣ	*g	*g	*g	*:-
*k-	*k	k,c	*k,*g?	*k	*g,*ĝ, *gʷ	*k	*k̄	*k,*q	*k	*k
*-k-	*k	k,c		*k	*g,*ĝ, *gʷ	*k	*g,*k	*g,*g	*g	*k
*k̕-	*k̕,*k	ḳ,k	*ɣ	*k̕	*k,*k̂, *kʷ	*k	*kʿ,*k̄	*k,*q	*x	*k
*-k̕-	*k̕	ḳ	*ɣ,*k	*k̕	*k,*k̂, *kʷ	*kk	*k	*k,*q	*k	*kk
*g-	*ɣ	ʕ?		*ɣ	*x, *xʷ, [*x̂?]	*-	*-	*-	*-	*-
*-g-	*ɣ	H		*ɣ	*x, ?*h	*-, ?*ɣ	*-	*-	*-, ?*g	*-
*q-	*χ	χ	*H	*q	*x, *xʷ, [*x̂?]	*-	*-	*-	*-	*-
*-q-	*χ	χ	?*H	*q	*H	*-	*-	*-,*g, ?*g	*-	*-
*g̕-	*k̕,*χ	ḳ,χ	*ɣ	*q̕	*k,*k̂, *kʷ	*k	*kʿ,*k̄	*k,*q	*x	*k
*-g̕-	*k̕	ḳ	?*ɣ	*q̕	*k,*k̂, *kʷ	*k, *kk	*k	*k,*q	*k	*k, *kk
*ӡ-	*z	ӡ?		*ӡ=*ӡ₁	*s	*s	*ĵ	*ӡ?	*ĵ	*ɬ
*-ӡ-	*z	ӡ?		*ӡ=*ӡ₁	*s	?*ć		*ӡ?	*ĵ?	*ṭ?
*c-	*s			*č=*c₁	?*(s)K	*ć	*C	*ɬ?	*C	*ɬ
*-c-	*s	?c	?*s	*č=*c₁	*s	*ć	*C ?	*ɬ?		
*c̕-	*c̕			*c̕=*c̕₁	?*(s)K	*ć	*C	*ɬ	*C	*ɬ
*-c̕-	*c̕,*s	?ӡ		*c̕=*c̕₁	*s	?*ć	*C	*ɬ		*ɬ
*s-	*š	s	*s	*ŝ=*s₁	*s	*s	*s	*s	*s	*ɬ
*-s-	*š	s	?*s	*ŝ=*s₁	*s	*s	*s	*s	*s	*ɬ
*z-	*z			*ź=*z₁	*H	*s	*ĵ	?*s	*s	*ɬ
¿*-z-		z?	?*z	*ź=*z₁	?*H	*s		?*s,*y		
*ӡ́-	*z	z?		*ӡ	*s	*ć	*ĵ	*ӡ?	*ĵ?	
*-ӡ́-	*z			*ӡ,*z	*s	*ć		*ӡ		*ɬ
*ć-	*s		*s	*c	*sK	*ć	*C		*C	*ɬ
*-ć-	*s			*c	*c	*s	*ć	*C ?	*ɬ?	*ɬ
*ć̕-	*c̕			*c̕	*sK	*ć	*C		*ɬ	*ɬ
*-ć̕-	*c̕,*s	?ӡ	?*s	*c̕	?*s	*ć(ć)	*C	*ɬ?		?*ɬ(ɬ)
*ś-	*š	s	*s	*s	*s	*ś	*s	*s	*s	*ɬ
*-ś-	*š	s	*s	*s	*s	*ś	?*s	*s	*s	*ɬ
*ź-	*z			*z	*H	*ś	*ĵ	?*s	*s	*ɬ
*-ź-	*z	z?, ś?	*z?	*z	*H	*ś		*ӡ?		*ɬ

N	S	Eg	B	K	IE	U	T	M	Tg	D
*ǯ-	*δ	ʒ?		*ǯ̣	*s	*č,?*y ?*š	*ǯ	*ʒ	*ʝ	*ṭ,?*ṭ̣
*-ǯ-	*δ	ʒ,d		*ǯ̣	*s,*d, *sd?	*δ	*δ	*ʒ,?*d	*ʝ?	
*č- ?*ṭ̣	*θ ??*d		?*ʝ	*č	*(s)t-	*č	*C	*ṭ	*C	*ṭ
*-č-	*θ	?ʒ	*s	*č	*s	*č	*C	*ṭ	*C?	*ṭ
*č̣-	*θ̣			*č̣̣	*(s)t	*č	*C	*ṭ	*C	*ṭ
*-č̣-	*θ̣	ʒ		*č̣̣	*tʰ, *sT	*č	*C	*ṭ	*C	*ṭ
*š-	*š	s	?*s	*š	*s	*š	*s	*s	*s	*ṭ
*-š-	*š	s	*s	*š	*s	*š	*s	*s	*s	*ṭ
*ž-	*š	?z		*z	*H	*š			*s?	
*-ž-	*š,?*z	?? ʒ	*z	*ž,*z	*H	*š			*ʝ?	
*ʒ̂-	*ŝ	?s		*ʒ̂	*ʝ	*λ	?*ʝ	*ʒ	*ʝ?	*ṭ
¿*-ʒ̂-			*s	*ʒ̂	*ʝ	*ʒ̂	*ʝ			*t,*tt
*ĉ-	*ŝ	š	?*s	*ĉ	*s	*ć	*C	*ṭ	*C	*ṭ
*-ĉ-	*ŝ	š		?*ĉ	*s	*ć	*C	*ṭ	?*C	*ṭ
*ĉ̣-	*ṣ̂	? ʒ	?*ʒ	*ĉ̣		*ŝ	*C	*ṭ	*C	*ṭ
*-ĉ̣-	*ṣ̂	ʒ		*c	*s	*ć	*C	*ṭ	*C	*ṭ
*ŝ-	*ŝ	š		*ŝ=*s₁	*s,*k̂s	*ŝ	*s	*s	*s, *š	*ṭ
*-ŝ-	*ŝ	š		*ŝ=*s₁	*s	*ŝ	*s	*s	*s, ?*ʝ	*ṭ
*ʒ̂-	*ŝ	š		?*ʝ	*ʝ	*ʝ,*ŝ	*ʝ	*s	*s	*n
*-ʒ̂-	*ŝ	??n	?*s	*ʝ	*ʝ	*ʒ̂	*ʝ	*ʝ	*ʝ	*ʝ
*ɣ-	*ʕ	ṣ		*ɣ	*X	*_	*_	*_	*_	*_
*-ɣ-	*ʕ	?ṣ	*H	?*ɣ, ⊥_/*χ	?*X, *_	*_, ?*ɣ	*_	*_	*_	*_, *∴
*χ-	*ħ	ħ	*H	*χ	*X	*_	*_	*_	*_	*_
*-χ-	*ħ	ħ	?*H⊢	*χ	*X	*_	*_,*∴	*_	*_, *∴	*_
*ʕ-	*ʕ	ṣ	?*H⊢	*_	*H	*_	*_	*_	*_	*_
*-ʕ-	*ʕ	ṣ	?*H⊢	*_	*H	*_,*∴	*_,*∴	*_	*_, *∴	*_
*ħ-	*ħ	ħ,x́	*H	*_	*H	?*_	*_	*_		*_
*-ħ-	*ħ	ħ	*H⊢	*_	*H	*_	*_,*∴	*_		*_
*h-	*h	?h	*_	*_	*X	*_	*_	*_	*_	*_
*-h-	*h, *_	h, -	?*_	*_	*X	*_	*_,*∴	*_	*_	*_,*∴
*ʔ-	*ʔ	ı̣,ʒ	*ʔ-,*H	*_	*ʔ = *_	*_	*_	*_	*_	*_
*-ʔ-	*ʔ	ʒ,y, -	*_,*ʔ	*_,*⊥˺	*_, *∴	*ʔ = *_	*_,*∴	*_	*_, *∴	*_
*m-	*m		*m	*m	*m	*m	*b|m	*m, _#/*b	*m, _#/*b	*m
*-m-	*m	m	*m	*m	*m	*m	*m	*m	*m	*m
*n-	*n	n	**n	**n	*n	*n	**ʝ	*n	**n	*n
*-n-	*n	n	**n	*n	*n	*n	**n	*n	*n	*ṅ
*ṅ-	*n	n	**n	**n	*n, ??*kn	*ṅ	*ʝ	*n	**n, ?*ŋ	*n

N	S	Eg	B	K	IE	U	T	M	Tg	D
*-ṅ-	*n	n	*n	**n	*n	*n	*n	*n	**n	*-ṇ-, t/n
*ń-	*n	n		*n	*i̯	*ń	*i̯(<*ń)	*n	*ń	*n
*-ń-	*n			*n	*i̯,?*n	*ń	*ń>*y	?*n	*N	*N
?*ŋ-	*n?				*n	*n,?*–	*–,*i̯	*–,*n	*ŋ	?*n
*-ŋ-	*n,*m	n	*n	*n	*n, *ngʰ, *nĝʰ, *ngʷʰ	*ŋ	*ŋ	*ŋ, *ng, *ng, *ŋK	*ŋ	*ŋk
*l-	*l	? ỉ	*l		*l	*l	*i̯	*n	?*l	??*t
*-l-	*l	r ?,з	*l	*l	*l	*l	*l	*l	*l	*l
*ḷ-	*l	?n	*l	*l	*l	*ļ	*i̯	*n	*l	*n
*-ḷ-	*l		*l	*l	*l	*ļ	*l	*l	*l	*ḷ
*ĺ-	*l		?*l	*l	*l	*ĺ	?*i̯	?*l, ?*n	?*l	*ń, **n
*-ĺ-	*l	r,з	*l	*l	*l	*ĺ	*ĺ	*l	*l	*ḷ
*r-	*r	r	?*r	*r	*r	*r	*i̯	?*n	*l, *n	*n
*-r-	*r	r,з	*r	*r	*r	*r	*r	*r	*r	*r̥; *r (<*rⱶ)
*-ŕ-	*r	r,з	*r	*r	*r	*r	*ŕ; _⊥/*r	*r	*r	*r̥
*w-	*w	ɯ	*w	*w	*u̯	*w	*b,*ʷ	*b	*b, ?*ʷ	*v, _U/*–
*-w- /V_V	*w	ɯ,з	?*w	*w,*–	*u̯	*w	*b,*–	*β,*b	*b	*v
*-w- /⊥_V	*w,*–	??–,ɯ	??*w	*w,*–	*u̯,*–	*w,*–		*b,*–	*b,*–	*–
*-w-_⊥ /a,E ?*V	*w,*–			*w	*u̯	*w,*ʷ	?*ʷ	*–,*ʷ	*–	*–,
*-w- /u_⊥	*:		?*:	*–,*w	*:,*–	*–	*:	*–		*:
*y-	*y	ỉ	?*y,*i	*–,?*y	*i̯,*ei̯	*y	*i̯	*y	?*y	*·
*-y- /V_V	*y	y,–	*y	*–	*i̯/*i	*y	*y	*y	*y, *–	*y,*–
*-y- /⊥_V	*y,*–	?–	*–	*–	*–,*i̯|, +*(s)-	*y,*⊥ʸ	*⊥ʸ, *–,*	*–,*y	*–, *⊥ʸ, *i̯	*–, *⊥
*-y- /V_⊥	*y,*–	y,–	?*y	*–	*i̯,*–	*y,*⊥ʸ	*–,*⊥ʸ	*–,*y	*–, *i̯	*–,*y

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Note: For considerations of space I have been obliged to skip all bibliographical references and indications of my predecessors and colleagues who were the first to propose some important inter-family comparisons (V. Illich-Svitych, B. Collinder, K.H. Menges, V. Blažek, M. Räsänen, V. Shevoroshkin, V. Terentyev, S. Starostin, E. Helimski, H. Fähnrich, S.A. Tyler, Th. Burrow, A. Gluhak, A. Bomhard, G. Klimov, G. Takács, B. Čop, I. Hegedűs, K. Bouda, and others). The necessary references and acknowledgements will appear in my *Nostratic Dictionary* (in preparation).

Index of Nostratic Words

Index of Nostratic words (mentioned in the book):

[1] *ʔibrE 'fig tree'

[2] *ĉ˺ʳi˺b▽ɣ▽ (or *ĉ˺ʳi˺b▽ʕ▽) 'hyena'

[3] *ʔ˹ü˺ŕ▽w▽ 'large feline'

[4] *Siw▽ŋgE 'leopard'

[5] *ʔoŕ˹u˺ 'antelope (male), deer'

[6] *maŋ˹g˺▽ or *maN˻i˻ˌg˹▽ 'monkey'

[7] *šüŋU 'snow'

[8] *čaí˻U˻g▽ 'snow' or 'hoar-frost'

[9] ?? *č˹ʳa˺Rʔ▽ 'hoar-frost', (>) 'frozen soil'

[10] *k˺ir˻u˻qa 'ice, hoarfrost; to freeze'

[11] *Sah˻i˻b▽ 'saline earth, desert'

[12] *tälwA or *talwä 'cold season, rain'

[13] *ɣam▽ 'water body'

[14] *moRE 'water body'

[15] *qaRp|p˺▽ 'to harvest' (→ 'cereals')

[16] *ʒükʌ or *ʒukE 'edible cereals, harvest (of wild plants?)'

[17] *gaL▽ 'cereals'

[18] *χänt˺▽ 'kernel, grain'

[19] *mälge 'breast, female breast'

[20] *ħalb▽ (or *χalb▽) 'white'

[21] *mayʒ̂▽ 'tasty beverage'

[22] *k˺ad▽ 'to wicker, wattle' (> 'wall, fence')

[23] *k˺oʔĉ|c▽ 'basket'

[24] *p˺|pat˹a˺ 'basket, box'

[25] *ʕ|ɣaŕK˹ʳu˺ 'sinew'

[26] *yaŋ˻y˻▽ 'sinew, tendon'

[27] *ḷoŋK˺a 'to bend'

[28] *ńoɣ|ʕlE (or *ńaɣ|ʕlE) 'sinew', 'to tie together'

[29] *p|p˺ešqE ~ *p|p˺eqšE 'spear'

[30] *t˺ul˻i˻ˌg˹▽ 'to spread like a veil/net, cover with a veil/net, catch with a net'

[31] *goki 'track' (→ 'way'), 'to follow the track'

[32] *ʳd˹EʕS▽ or *ʳd˹Eɣ|χS▽ 'to follow the tracks'

[33] *šuby▽ 'spike, spear, to pierce'

[34] *t˺ap˺▽ 'to hit (the target)'

[35] *ment⌐∇ 'to miss one's aim' (→ 'to pass by')

[36] *gurHa 'antelope, male antelope'

[37] *ʔEʇǀḷi 'deer'

[38] *boča '(young) deer'

[39] *buKʾa 'bovines'

[40] *čoma 'aurochs, wild bovine'

[41] ? *čʿaꞋwₗ∇ⱼR∇ (or *čuR∇) 'bull, calf'

[42] *ɣǀgawV 'wild sheep\goats', (→ or ←) 'wild game'

[43] *diga 'goat'

[44] *kʿäꞋcˀ∇ 'wild goat' (or 'a kind of antelope')

[45] *bukEɣǀʕ∇ 'billy goat, ram'

[46] *ʕ∇pꞋ∇r∇ 'wild boar'

[47] *ʕirʿiꞋ '(male, young) artiodactyl'

[48] *pʾoKʾü 'pack, wild cattle'

[49] *gadi (or *gati?) 'kid, young goat', ? '(a species of) antelope'

[50] *bUyẑ∇ 'fur-bearing animal'

[51] *ʔǀhUr∇(-ba) 'squirrel or a similar animal'

[52] *kꞋunǀm̃∇(ŕ∇) 'small carnivore (marten, polecat, wild cat, or sim.)'

[53] *dikꞋ∇ 'edible cereals or fruit'

[54] *ʒǀśugb∇ 'fig tree (species?)'

[55] ?? *bʿiꞋŕʿuwꞋga '(a kind of) edible fruit'

[56] *KꞋuS∇ 'nut'

[57] *L∇ž∇ (or *L∇wž∇) '(a kind of) nut', 'nut-tree\shrub'

[58] *butꞋ∇ 'pistachio tree\nut'

[59] *marₗyⱼ∇ '(mul-, black-) berries'

[60] *mʿoꞋₗyⱼẑ∇ '(a kind of) berry'

[61] ? *KꞋER∇ 'fruit of a leguminous plant' or sim.

[62] *mʿuꞋrkꞋ∇(-ŋKꞋ∇) 'root, root-crops, edible roots'

[63] *moʇǀḷ∇ 'to pound, crumble, gnaw/smash to pieces'

[64] *ʔäPHi 'to bake, prepare food on hot stones'

[65] *qUbẑ∇ (< *qUpẑ∇?) 'food made of ground cereals', 'flour' (> 'bread')

[66] *ʿʔꞋomśa 'meat'

[67] *gʿuꞋʒ∇ 'intestines, pluck (as food)'

[68] *ʔayŋo 'marrow, brain, soft fat of animals'

[69] *magₗiⱼza 'liver'

[70] *ń̃ʿaꞋKꞋU 'soft parts of the animal's body (liver, marrow, suet)'

[71] *muñ̃a(-tǀd∇) 'egg'

[72] ? *ʔˤaǀoˤ wħǀχ i or *ʔuħǀχ i 'egg' (or 'white of egg')

[73] *K̓ oɪ∇ '(large) fish'

[74] *doTgiHU 'fish'

[75] *mEnǀn̂ i '(a kind of) fish'

[76] *pǀp̓ ay∇ '(a kind of) fish'

[77] *t̓ üR∇ 'hard-roe'

[78] *ˤk̓ʼ ür˻w˼∇ or *ˤk̓ʼ ur˻w˼E 'hard roe, spawn'

[79] *madu 'honey'

[80] *č̓ʼ ü̓r∇ 'flint-stone, knife'

[81] ? *buR∇ 'flint' (> 'to cut\carve with a flint')

[82] *tiǀe˻ʔa˼ío (or *tü˻ʔa˼í∇) 'stone, heap of stones'

[83] *kiw˻∇˼ħE 'stone'

[84] *boruꜟǀɣ∇ 'trunk' (→ 'log')

[85] ? *c̓ʼUʟ∇ 'stalk, stick'

[86] *k̓ ožꜟ∇ 'tree trunk'

[87] *kan̂∇(-b∇) 'stalk, trunk' (→ 'log')

[88] *žuR∇ 'pole, long piece of wood'

[89] *ŝirɣuǀü 'vein, sinew'

[90] *ʔeẑekU 'thorn, hook' (< 'tooth')

[91] *k̓ʼ a̓k˻w˼∇ 'tooth, claw', 'hook'

[92] *toŕ∇ 'bark; to bark (remove the bark), to peel'

[93] *K̓ a̓pʔǀꜟʼʼE̓ 'bark'

[94] *K̓ ayer∇ 'bark, film'

[95] *t̓ o˻w˼ga or *t̓ oga˻-w∇˼ 'hide, skin'

[96] *t̓ aʟ˻U˼ya 'skin, pelt'

[97] *K̓ aí̓ü̓ 'skin, film, bark'

[98] *k̓ oRup̓ ∇ '(kind of) bark', 'skin'

[99] *K̓ oẑ∇ 'to skin, to bark'

[100] *K̓ ∇R∇Hp̓ǀp∇ 'piece of leather (used esp. as footwear)'

[101] *p̓ ixǀɣyA 'sharp bone, sharp tool'

[102] *piš∇ 'bile'

[103] *ˤt̓ʼ äxʟǀʟa ~ *ˤt̓ʼ äǀʟxa or *ˤt̓ʼ axʟǀʟE ~ *ˤt̓ʼ aǀʟxE 'spleen'

[104] *ʟˤäǀe̓p̓ A 'spleen'

[105] *t̓ EqmE 'sinciput, crown of the head, top, tip'

[106] *ˤg̓ edi 'occiput; hind part'

[106] ? *goǀatK̓ E 'popliteal space (back of the knee), armpit'

[108] *n̂ iK̓ a 'jugular vertebra, neck, nape of the neck'

[109] *kälu|ü 'a woman from the other exogamous moiety'

[110] *küda 'a man from the other moiety'

[111] *śeʒA 'a relative from the other moiety'

[112] *ˌħ|χ∇ˌwän̊|n∇ 'relative [of a younger\the same generation] from the other moiety'

[113] *n|n̊u|ǘś∇ or *n|n̊u|üsy∇ 'woman' (general term), 'woman from the other moiety'

[114] *Hić|cχ∇ or *-cˀ|cˀ-ˌ *-γ|g|h- 'father, head of a family'

[115] *ʔediN∇ 'pater familias'

[116] *ʔemA 'mother'

[117] *ʔˈäˈy∇ (or *hˈäˈy∇?) 'mother'

[118] ?? *ʔaba ~ *ʔapˈa 'daddy, father'

[119] *ʕoɡ|l∇ 'child, one's child, to beget, to bear a child'

[120] *ʔar∇ 'member of the clan'

[121] *ʔarba 'to make magic, cast spells'

[122] *ʕˈaˈl∇ 'to burn (esp. sacrifices), use magic means (sacrifices, magic formulae etc.) to produce a particular result'

[123] ??*ʕ|ɣa|l∇ 'device (esp. a dishonourable one) of doing something'

[124] *ŝotˈ∇ 'to exercise magic force' (> 'to curse, bless')

[125] ≈≈*tul∇ 'to tell (a story), pronounce magic\ritual texts'

The Nostratic Macrofamily
and Linguistic Palaeontology

Nostratic is a hypothetical macrofamily of languages which includes
Indo-European, Hamito-Semitic (Semitic, Egyptian, Berber, Cushitic,
Omotic, Chadic), Kartvelian (Georgian and related languages), Uralic
((Finno-Ugric, Samoyedic, Yukagir), Altaic (Turkic, Mongolic, Tungusic,
Korean, Japanese), and Dravidian (in India). The hypothesis is based on
more than 2000 common roots and affixes, in which regular sound
correspondences are observed. In the present book the ancient Nostratic
roots are used in order to achieve information about the speakers of
Proto-Nostratic, their habitat, their culture and economy, their kinship
system, and their environment. An attempt is made to determine
whether their culture belonged to the Neolithic peroid or to an earlier
epoch.

Aharon Dolgopolsky was born in Moscow in 1930. He was a member of
the Institute of Linguistics (USSR Academy of Sciences). His field of
research is comparative linguistics. In the early 1960s he (like V. Illich-
Svitych, but independently) began to study lexical and grammatical
similarities among Indo-European, Hamito-Semtic, Kartvelian, Uralic
and Altaic and draw the conclusion that these language families derive
from a common source, Illich-Svitych and Dolgopolsky were the first to
undertake a multilateral comparison of daughter-languages of Nostratic.
For 8 years Dolgopolsky taught Nostratic linguistics at Moscow
University and trained a generation of comparativists (S. Starostin, E.
Helimski, O. Stolbova, and others). In 1976 he moved to Israel and since
then has worked at Haifa University.